

PRESIDING MEMBER S PROPOSED DECISION

APPLICATION FOR CERTIFICATION

WESTERN MIDWAY SUNSET

Docket No 99-AFC-9



FEBRUARY 2001

**CALIFORNIA
ENERGY
COMMISSION**

P 800-01-003

**CALIFORNIA
ENERGY
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INTRODUCTION

A. SUMMARY

This document is the California Energy Commission's (CEC) Presiding Member's Proposed Decision (PMPD).¹ It contains the CEC Committee's determinations regarding the Application for Certification (AFC) for the Western Midway Sunset Power Project (Midway Sunset).² This PMPD includes the findings and conclusions required by law, and it is based exclusively on the evidentiary record established at the hearings on the application. The document contains the Committee's reasons supporting its Decision and references to portions of the record, which support the Committee's findings and conclusions.³

The proposed project is a nominal 500-megawatt (MW), natural gas-fired, combined cycle project, which Applicant will operate to produce electricity for the state electrical grid. Natural gas will be conveyed to the powerplant site via two existing gas supply pipelines, which supply Applicant's adjacent 225 MW facility.⁴ The proposed project lies on a 10-acre site immediately adjacent to Applicant's

¹ The requirements for the Presiding Member's Proposed Decision are set forth in the Commission's regulations, Title 20, California Code of Regulations, sections 1749 through 1754. Requirements for the Revised PMPD are found in Title 20, California Code of Regulations, section 1753. The Final Decision is described in Section 1755.

² Western Midway Sunset Cogeneration Company (WMSCC or Applicant) is proposing to construct and operate the Midway Sunset Power Project. Applicant plans to locate the proposed project immediately adjacent to its existing 225 MW facility (CEC Docket # 85-3) in western Kern County, approximately 2.5 miles east of the community of Derby Acres.

³ References to the evidentiary record, which appear in parentheses following the referenced material, may include an exhibit number and/or a reference to the date, page and line number(s) of the reporter's transcript e.g., (Ex. 2, p. 55; 12/13 RT 123:8-124:3.)

⁴ The Kern/Mojave and Southern California Gas Company pipelines currently supply the site. (Ex. 1, [Vol. 1], / 3.7-1.) Applicant owns, operates and maintains a 3.8 mile, 14" pipeline connecting the 225 MW facility to the Kern River/Mojave west side distribution system. (*Ibid.*) Southern California Gas owns, operates, and maintains the west side distribution system, line 85, gas pipeline that connects to Applicant's current facility. (*Ibid.*)

existing 225 MW facility; Applicant's objective is to utilize its existing infrastructure to supply California's restructured market with electric energy.⁵

Transmission will be provided by a new 230 kV switchyard, and a new 19 mile, single circuit, 230 kV transmission line interconnect to Pacific Gas & Electric's (PG&E) regional transmission system at the Midway substation near Buttonwillow (Line A).⁶ The new line will be constructed parallel to and within the existing 230 kV line corridor of Applicant's adjacent facility.

Water supply will be provided by a new 1.8-mile, 16-inch diameter pipeline extending from the West Kern Water District (WKWD). Applicant will contract the WKWD under long term agreements to secure its water supply of approximately 3,260-acre feet per year (AFY).⁷ The water supply pipeline is within Applicant's existing pipeline corridor.

Applicant plans to begin construction immediately after certification, which is expected to occur in March 2001. Construction will run through October 2002 for a period of 20 months. Commercial operation should occur by the fall of 2002. There will be a peak work force of approximately 400 individuals, and five additional permanent facility personnel will enhance Applicant's power plant operations staff.

Applicant estimates that the construction payroll will be \$25 million dollars for the 20-month construction period and the operation payroll will be \$475,000 dollars with \$300,000 for local supplies annually during operations. (Ex. 15, p. 289.)

⁵ See Project Description, Figure 1 *infra*. for a map of the local area and access to the site from Bakersfield.

⁶ Applicant in the AFC has identified several alternative transmission routes to Line A, however, Applicant considers Line A to be its best option.

⁷ Application of water reclamation to the proposed project, and dry low NOx technology to Applicant's turbines at the existing facility will reduce water demand because of the proposed project to a net increase of 1,980 AFY.

According to Applicant, \$22.4 to \$25.2 million dollars worth of materials and equipment will be purchased in the local area during construction. (*Ibid.*)

The annual property tax collected by Kern County for Midway Sunset over the first year of operation, given an estimated 30 years of expected life, is projected to be about \$2.4 million dollars. (Exs. 15, p. 299; 1, [Vol. 1], p. 5.10-13; see *also* Table 10-8, page 5.10-10 for additional information on property taxes and their economic impact in Kern County from the proposed project).

We have found that Applicant was successful in meeting its burden of proof. Selective Catalytic Reduction (SCR) is a proven technology for the source and type of engineering that Applicant will employ. In addition, Applicant plans to employ carbon monoxide (CO) oxidation catalyst as part of its pollution control package. Moreover, to ensure adequate mitigation of emissions during project construction, Applicant has agreed to use oxidizing soot filters on construction equipment wherever feasible.

B. SITE CERTIFICATION PROCESS

The Midway Sunset Power Project and its related facilities fall within Energy Commission licensing jurisdiction. (Pub. Resources Code, // 25500 et seq.). During its licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Resources Code, // 25519(c), 21000 et seq.) The Commission's process and associated documents are functionally equivalent to the preparation of the traditional Environmental Impact Report. (Pub. Resources Code, /21080.5.)

The Commission's process is designed to allow the review of a project to be completed within a limited period; a license issued by the Commission is in lieu of other state and local permits. The Commission's certification process provides a thorough and timely review and analysis of all aspects of this proposed project.

During the process, we conduct a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

Significantly, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally, or on a more formal level as an Intervenor with the same legal rights and duties as the project developers.⁸ Public participation is encouraged at every stage of the process.

The process begins when an Applicant submits the Application for Certification (AFC). Commission staff reviews the data submitted as part of this AFC, and recommends to the Commission whether or not it contains adequate information to permit review to commence. Once the Commission determines that an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the licensing process. The Commission also appoints a hearing officer to provide legal assistance to the Committee in each case. This process includes holding public conferences and evidentiary hearings, as well as providing a recommendation to the full Commission concerning a project's ultimate acceptability. The Committee and ultimately the Commission serve as fact-finder and decision-maker.

The Commission has a Public Advisor. The role of the Commission's Public Advisor is to assist members of the public and intervenors with their understanding of and participation in the Commission's siting process.

All parties, including the applicant, Commission staff, and any intervenors, are subject to the *ex parte* rule, which prohibits them from communicating on

⁸ California Unions for Reliable Energy (CURE) and the San Luis Obispo County Air Pollution Control District (SLOCAPCD) were granted status as Intervenor; neither participated in the evidentiary proceedings.

substantive matters with Committee members, their staffs, and the hearing officer, except for communications which are on the public record.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining such further technical information as is necessary. During this time, the Commission staff sponsors numerous public workshops at which intervenors, agency representatives, members of the public, Staff, and Applicant meet to evaluate and resolve pertinent issues. Staff then publicizes its initial technical evaluation of the project in the document called the Preliminary Staff Assessment (PSA).

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of the available information, identify issues, and determine the positions of the various participants. Information obtained from this event forms the basis for a Hearing Order organizing and scheduling formal evidentiary hearings. These hearings are conducted after Staff has finalized its analytical technical evaluation of the project in the document called the Final Staff Assessment (FSA).

At the evidentiary hearings following the FSA's release, all participants that have become formal parties are able to present testimony, under oath or affirmation, which is subject to cross-examination by other parties and to questioning by the Committee. The public may also comment on the proposed project at these hearings. Evidence and public comment adduced during these hearings provides the basis for the decision-makers' analysis.

This analysis appears in a Committee recommendation to the full Commission in the form of a Presiding Member's Proposed Decision, which is available for a public review period of at least 30 days. Depending upon the extent of revision necessary in reaction to comments received during this period, the Committee may then elect to publish a revised version. If so, this latter document triggers an

additional 15-day public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

C. PROCEDURAL HISTORY

The Public Resources Code and the Commission's regulations mandate a public process and specify the occurrence of certain necessary events. (Pub. Res. Code, // 25500 et seq.; Cal. Code of Regs., tit. 20, // 1701, et seq.) The essential procedural elements occurring during the present case are summarized below.

The Applicant submitted its Application for Certification (AFC) on December 22, 1999. Shortly thereafter, Staff sent a request for agency participation to those governmental agencies likely to have an interest in the project. On March 8, 2000, the full Commission determined that the Applicant had made its AFC sufficiently informative and complete to commence the review process.

The Committee scheduled its initial event, an Informational Hearing and Site Visit, by Notice dated March 24, 2000. This notice was sent to all known to be interested in the proposed project, including owners of land adjacent to, or in the near vicinity of, the Midway Sunset project; it was also published in local general circulation newspapers.

The Committee conducted the Informational Hearing in the City of Taft on April 10, 2000. There, the Committee and other participants discussed the proposed project, described the Energy Commission's review process, and identified opportunities for public participation. Following adjournment of the hearing, Applicant hosted a visit to the proposed power plant site. The Committee issued its required Scheduling Order on April 26, 2000.

Staff released its PSA on August 18, 2000, and conducted various workshops to receive comments on the PSA. Scheduled by Notice dated October 5, 2000, the Committee held a Prehearing Conference on November 20, 2000. At the Prehearing Conference, the parties and the Committee addressed issues of special concern to the parties. Also discussed were special concerns the Committee had regarding conduct of the evidentiary proceedings.

On November 14, 2000, Staff issued its Final Staff Analyses. Evidentiary hearings were scheduled by Notice of Evidentiary Hearings dated November 29, 2000.⁹ The Committee completed evidentiary hearings on January 11, 2000.

The Committee after reviewing and compiling the evidentiary record published this Presiding Member's Proposed Decision (PMPD) on February 14, 2001. The Committee has selected March 13, 2001, as the date for the Committee Conference on the PMPD.

Based upon the Committee Conference, and any other comments received, the Committee may issue revisions to the PMPD. If substantial revisions are contemplated to the PMPD, the Committee may elect to issue a Revised PMPD. If this occurs, the parties will have an additional 15-day comment period in which to address any concerns. Thereafter, the Commission will issue its decision on the Midway Sunset Power Project.

⁹ Following the Notice, the Committee conducted an evidentiary hearing in the City of Taft on December 13, 2000. At the hearing, and later by separate Notice, due to late receipt of the air district's Final Determination of Compliance (FDOC), the Committee rescheduled the second day of evidentiary hearings for January 11, 2001, in Sacramento.

I. PROJECT PURPOSE AND DESCRIPTION

A. SUMMARY OF THE EVIDENCE

Western Midway Sunset Cogeneration Company (WMSCC or Applicant) is proposing to construct and operate the Midway Sunset Power Project. Applicant plans to locate the proposed project immediately adjacent to its existing 225 MW facility (CEC Docket # 85-3) in western Kern County, approximately 2.5 miles east of the community of Derby Acres. (Exs. 15, p. 11; 1, / 1.1; see **Figure 1** below.)

The proposed project is a nominal 500-megawatt (MW), natural gas-fired, combined cycle project, which Applicant will operate to produce electricity for the state electrical grid. (Ex. 15, p. 11.) Natural gas will be conveyed to the power plant site via two existing gas supply pipelines, which supply Applicant's adjacent 225 MW facility.¹⁰ (Exs. 15, p. 11; 1, [Vol. 1], / 1.1.) The proposed project lies on a 10-acre site immediately adjacent to Applicant's existing 225 MW facility; Applicant's objective is to utilize its existing infrastructure to supply California's restructured market with electric energy. (Ex. 15, p. 11.)

Transmission will be provided by a new 230 kV switchyard, and a new 19 mile, single circuit, 230 kV transmission line interconnect to PG&E's regional transmission system at the Midway substation near Buttonwillow (Line A).¹¹ (Exs. 15, p.13; 1, [Vol. 1], / 3.1.) The new line will be constructed parallel to and within the existing 230 kV line corridor of Applicant's adjacent facility. (*Ibid.*)

¹⁰ The Kern/Mojave and Southern California Gas Company pipelines currently supply the site. (Ex. 1, [Vol. 1], / 3.1.)

¹¹ Applicant in the AFC has identified several alternative transmission routes to Line A, however, Applicant considers Line A to be its best option. (Exs. 15, p.13.)

Water supply will be provided by a new 1.8-mile, 16-inch diameter pipeline extending from the West Kern Water District (WKWD). (Exs. 15, p.12; 1, [Vol. 1], p. 1-9.) Applicant will contract the WKWD under long term agreements to secure its water supply of approximately 3,260-acre feet per year (AFY).¹² The water supply pipeline is within Applicant s existing pipeline corridor. (*Ibid.*)

Major components of the proposed 500 MW, combined cycle, Midway Sunset project will include:

- Two General Electric Frame 7F or Westinghouse 501F 170 MW combustion turbine generators (CTGs);
- One shared 160 MW Steam Turbine Generator (STG);
- Two Heat Recovery Steam Generators (HRSGs);
- Three power transformers; and
- One seven-cell cooling tower; with high efficiency drift eliminators.

Dry low NO_x (oxides of nitrogen) combustors will be used in each CTG. (Ex. 15, p. 12.) Each HRSG will be equipped with a Selective Catalytic Reduction (SCR) emission control system. (*Ibid.*) Applicant will employ aqueous ammonia to react with NO_x on the SCR s catalyst to form nitrogen gas and water vapor, which is released through the stacks.

¹² Application of water reclamation to the proposed project, and dry low NO_x technology to Applicant s turbines at the existing facility will reduce water demand because of the proposed project to a net increase of 1,980 AFY. (Exs. 15, 12; 1, [Vol. 1], p. 1-9.)

PROJECT DESCRIPTION Figure 1
Midway Sunset Power Project —Local Setting

Source: Ex. 15, p. 14

FINDING AND CONCLUSION

Based upon the evidence of record, we find as follows:

1. The project objective is to construct and operate a nominally rated 500 MW natural gas-fired combined cycle merchant power plant.

The project consists of the electrical power generation equipment, the transmission interconnection, the raw and potable water supply lines, the natural gas pipeline, and appurtenant facilities.

II. NEED CONFORMANCE

The Commission accepted the Midway Sunset Power Project Application for Certification on March 8, 2000. On September 28, 1999, the Governor signed Senate Bill No. 110, which became Chapter 581, Statutes of 1999. This legislation repeals Public Resources Code sections 25523(f) and 25524(a) and amends other provisions relating to the assessment of need for new energy resources. It thereby removes the requirement that, to certify a proposed facility, the Commission must make a specific finding that the proposed facility is in conformance with the adopted integrated assessment of need. Regarding need-determination, Senate Bill 110 states:

Before the California electricity industry was restructured the regulated cost recovery framework for powerplants justified requiring the commission to determine the need for new generation, and site only powerplants for which need was established. Now that powerplant owners are at risk to recover their investments, it is no longer appropriate to make this determination. (Pub. Resources Code, / 25009, added by Stats. 1999, ch. 581,/1.)

Senate Bill 110 took effect on January 1, 2000. (Cal. Const., Art. 4,/8.) As of that date, the Energy Commission is no longer required to determine if a proposed project conforms to an integrated assessment of need. Therefore, any application for certification for which the Commission adopts a final decision after January 1, 2000, is not subject to a finding of "need conformance."

In this case, the Commission's final decision will be made after January 1, 2000. Therefore, because of SB 110, the Commission makes no finding of "need conformance" with respect to the proposed project.

III. PROJECT ALTERNATIVES

The Commission is required during the AFC process to examine the feasibility of site and facility alternatives that may avoid or lessen the potential significant environmental impacts of a proposed project. (Pub. Resources Code, / 21080.5(b)(3)(A); Cal. Code of Regs., tit. 20,/1765.) Although Applicant's AFC was not required to contain a discussion of site alternatives, the Commission's CEQA duty remained unchanged. (See Pub. Resources Code,/25540.6 (b).) Therefore, this Decision complies "with the CEQA guidelines , which require:

an evaluation of the comparative merits of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project , as well as an evaluation of the no project alternative. (14 CCR,/15126 (d).)

The range of alternatives that we are required to consider is governed by a rule of reason . This means that our consideration of alternatives may be limited only to those:

that would avoid or substantially lessen any of the significant effects while continuing to attain most of the basic objectives of the project, and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. (14 CCR,/15126 (d) (5); Ex. 19D, Part III, p. 7.)

SUMMARY OF THE EVIDENCE

The evidence of record addresses alternatives to the major components of the Midway Sunset project. (Exs. 15; p. 427; 1 p. 3.11-1.) This includes generation technology, site selection, and linear facility routing. (*Ibid.*)

The methodology used to prepare the alternatives analysis includes:

- Identifying the basic objectives of the project;

- Providing an overview of the project's potentially significant adverse impacts;
- Identifying and evaluating alternatives to the project;
- Identifying and evaluating alternative locations for sites; and
- Evaluating the impacts of not constructing the project. (Ex. 15, pp. 427-28.)

1. Project Objectives

The evidence presented by both Applicant and Staff indicates that Applicant's objectives for constructing the Midway Sunset project include the following:

- Build and operate a merchant power plant that utilizes Applicant's existing infrastructure and supplies economic, reliable, and environmentally sound electrical energy and capacity in the newly deregulated energy market;
- Locate the Midway Sunset project near Applicant's existing 225 MW facility and infrastructure, to include transmission line interconnections, supplies of process water and natural gas. (Ex. 15; p. 428-29.)

2. Potentially Significant Adverse Impacts

The environmental impacts of the project are discussed in detail in the individual subject areas of this Decision. However, Staff has not identified any potentially significant, unmitigated, adverse environmental impacts in any of our subject areas of discussion. (Ex. 15, p. 431.) Applicant's ability to mitigate impacts to levels of insignificance is discussed under the respective topics.

3. Technological Alternatives

Staff compared various alternative technologies with the proposed project, scaled to meet the project's objectives. Technologies examined were those principal electricity generation technologies that do not burn fossil fuels such as natural gas, solar, and wind. Each of these technologies could be attractive from an environmental perspective because of the absence or reduced level of air

pollutants. (Ex. 15, p. 431.) Staff found, however, that each alternative examined was inappropriate when scaled to the production capabilities of the proposed project. (Ex. 15, p. 431, 32.)

4. Alternative Locations

The evidence indicates that Commission staff evaluated three alternative locations that met the foregoing project objectives of efficiently providing electrical power utilizing an existing energy infrastructure. (Ex. 15, p. 432.)

Alternative site A, which Applicant prefers and Staff endorses, and alternative site B, are located on Applicant-owned property in close proximity to each other and adjacent to Applicant's existing 225 MW facility. (Ex. 15, pp. 432; 438.) Alternative site C, on the other hand, is remotely located in Coalinga (Fresno County) on Aera Energy oil field property. (Ex. 15, p. 432-36; Ex. 1, [Vol. 1], p. 3.11-2-3.11-6.)

Each site was found deficient in some important locational or environmental aspect to the proposed project. (Ex. 15, pp. 432-36; Ex. 1, [Vol. 1], p. 3.11-2-3.11-6.) The analysis of each of these alternatives is detailed in the evidence of record, and indicates that industrial development at these sites would result in potentially greater environmental impacts than the proposed project. (*Ibid.*) In addition, alternative site layouts, technologies, equipment, and appurtenant facilities were discussed as part of the project. (Exs. 15, p. 436; 1, pp.3.11-6-16.) These are analyzed in more detail under the related engineering subject areas, and topics.

5. No Project

Applicant's analysis in the AFC and Staff's no project analysis in the FSA both conclude that the no project alternative is not feasible. (Ex. 15, pp. 437-38; Ex. 1, [Vol. 1], p. 3.11-16.) Applicant and Staff based their determination largely on

the project s efficient service to California s need for a substantial amount of additional generation capacity. (*Ibid.*)

FINDINGS AND CONCLUSIONS

Based upon the totality of the evidence of record, including that relating to each subject area contained in other portions of this Decision, we find and conclude as follows:

1. The evidence of record contains an acceptable analysis of a reasonable range of alternatives to the project as proposed.
2. The evidentiary record contains a review of alternative technologies, fuels, linear routings, and the no project alternative.
3. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the Midway Sunset Power Project will not create any direct, indirect, or cumulative significant adverse environmental impacts.
4. No alternative to the project considered by the Commission, including but not limited to the 'no project' alternative, would avoid or lessen any direct, or indirect, or cumulative significant adverse environmental impacts of the Midway Sunset project, because as mitigated the Midway Sunset project will not cause any such impacts.
5. No alternative to the project considered by the Commission, including but not limited to the 'no project' alternative, is feasible, because none are capable of meeting the key project objective, which is to provide efficient electrical power utilizing an existing energy infrastructure.

We therefore conclude that the evidence of record contains an analysis of possible alternatives to the Midway Sunset Power Project, including its appurtenant facilities, which satisfies the requirements of both the Warren-Alquist Act and the California Environmental Quality Act and implementing regulations.

IV. COMPLIANCE AND CLOSURE

Public Resources Code section 25532 requires the Commission to establish a post-certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, standards, as well as the specific Conditions of Certification adopted as part of this Decision.

SUMMARY OF THE EVIDENCE

The evidence of record contains a full explanation of the purposes and intent of the Compliance Plan (Plan). The Plan is the administrative mechanism used to ensure that the Midway Sunset Power Project is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the project owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

Compliance with the Conditions of Certification contained in this Decision is verified through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary and unexpected permanent closure, of the project.

The Compliance Plan is composed of two broad elements. The first element is the "General Conditions". These General Conditions:

- Set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- Set forth the requirements for handling confidential records and maintaining the compliance record;
- Establish procedures for settling disputes and making post-certification changes;
- State the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed conditions; and

- Establish requirements for facility closure.

The second general element of the Plan contains the specific Conditions of Certification . These are found following the summary and discussion of each individual topic area in this Decision. The individual conditions contain the measures required to mitigate potentially adverse project impacts associated with construction, operation and closure to an insignificant level. Each condition also includes a verification provision describing the method of assuring that the condition has been satisfied.

The contents of the Compliance Plan are intended to be read in conjunction with any additional requirements contained in the individual Conditions of Certification.

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

1. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Midway Sunset Power Project will be designed, constructed, operated, and closed in conformity with applicable law.
2. Requirements contained in the Compliance Plan and in the specific Conditions of Certification are intended to be read in conjunction with one another.

We therefore conclude that the compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532. Furthermore, we adopt the following Compliance Plan as part of this Decision.

COMPLIANCE PLAN

GENERAL CONDITIONS OF CERTIFICATION

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

A CPM will oversee the compliance monitoring and shall be responsible for:

1. ensuring that the design, construction, operation, and closure of the project facilities is in compliance with the terms and conditions of the Commission Decision;
2. resolving complaints;
3. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;
4. documenting and tracking compliance filings; and,
5. ensuring that the compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies and the Energy Commission when handling disputes, complaints and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, it should be understood that the approval would involve all appropriate staff and management.

The Commission has established a toll free compliance telephone number of **1-800-858-0784** for the public to contact the Commission about power plant construction or operation-related questions, complaints or concerns.

Pre-Construction and Pre-Operation Compliance Meeting

The CPM may schedule pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings will be to assemble both the Energy Commission's and the project owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Energy Commission's conditions of certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings shall ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight or inadvertence and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

Energy Commission Record

The Energy Commission shall maintain as a public record, in either the Compliance file or Docket file, for the life of the project (or other period as required):

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
2. all monthly and annual compliance reports filed by the project owner;
3. all complaints of noncompliance filed with the Energy Commission; and,
4. all petitions for project or condition changes and the resulting staff or Energy Commission action taken.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the conditions of certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the conditions of certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate.

Access

The CPM, responsible Energy Commission staff, and delegate agencies or consultants, shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

Compliance Record

The project owner shall maintain project files on-site or at an alternative site approved by the CPM, for the life of the project. The files shall contain copies of all as-built drawings, all documents submitted as verification for conditions, and all other project-related documents for the life of the project, unless a lesser period is specified by the conditions of certification.

Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files.

Compliance Verifications

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified, as necessary by the CPM, and in most cases without full Energy Commission approval.

Verification of compliance with the conditions of certification can be accomplished by:

1. reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;

2. appropriate letters from delegate agencies verifying compliance;
3. Energy Commission staff audits of project records; and/or
4. Energy Commission staff inspections of mitigation and/or other evidence of mitigation.

Verification lead times (e.g., 90, 60 and 30-days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved condition(s) of certification by condition number and include a brief description of the subject of the submittal.** The project owner shall also identify those submittals **not** required by a condition of certification with a statement such as: This submittal is for information only and is not required by a specific condition of certification. When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All submittals shall be addressed as follows:

**Compliance Project Manager
Midway Sunset Power Project (99-AFC-9)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814**

If the project owner desires Energy Commission staff action by a specific date, they shall so state in their submittal and include a detailed explanation of the effects on the project if this date is not met.

Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

Compliance Matrix

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to

provide the CPM with the current status of all compliance conditions in a spreadsheet format. The compliance matrix must identify:

1. the technical area,
2. the condition number,
3. a brief description of the verification action or submittal required by the condition,
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.),
5. the expected or actual submittal date,
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable, and
7. the compliance status for each condition (e.g., not started , in progress or completed date).

Completed or satisfied conditions do not need to be included in the compliance matrix after they have been identified as completed/satisfied in at least one monthly or annual compliance report.

Pre-Construction Matrix

Prior to commencing construction a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's **first** compliance submittal. It will be in the same format as the compliance matrix referenced above.

Tasks Prior to Start of Construction

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Project owners frequently anticipate starting project construction as soon as the project is certified. In some cases it may be necessary for the project owner to file submittals prior to certification if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that pre-construction activities that are initiated prior to certification are performed at the owner's own risk. Failure to allow specified lead-time may cause delays in start of construction.

Various lead times for verification submittals to the CPM for conditions of certification are established to allow sufficient staff time to review and comment, and if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Monthly Compliance Report

The first Monthly Compliance Report is due the month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events List. The Key Events List is found at the end of this section.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and five copies of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain at a minimum:

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;
3. an initial, and thereafter updated, compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
4. a list of conditions which have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;
5. a list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;
6. a cumulative listing of any approved changes to conditions of certification;
7. a listing of any filings with, or permits issued by, other governmental agencies during the month;
8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;
9. a listing of the month's additions to the on-site compliance file; and
10. any requests to dispose of items that are required to be maintained in the project owner's compliance file.
11. a listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

Annual Compliance Report

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following:

1. an updated compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Annual Compliance Report;
4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings made to, or permits issued by, other governmental agencies during the year;
7. a projection of project compliance activities scheduled during the next year;
8. a listing of the year's additions to the on-site compliance file, and
9. an evaluation of the on-site contingency plan for unexpected facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section].
10. a listing of complaints, notices of violation, official warnings, and citations received during the year; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

Confidential Information

Any information, which the project owner deems confidential shall be submitted to the Energy Commission's Docket with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information, which is determined to be confidential, shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq.

Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of eight hundred and fifty dollars (\$850). The payment instrument shall be provided to the Commission's Project Manager at the time of project certification and shall be made payable to the California Department of Fish

and Game. The Commission's Project Manager will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

Reporting of Complaints, Notices, and Citations

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering, with date and time stamp recording. The telephone number shall be posted at the project site and easily visible to passersby during construction and operation.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form on the following page.

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME:

AFC Number:

COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number:

Date and time complaint received:

Indicate if by telephone or in writing (attach copy if written):

Date of first occurrence:

Description of complaint (including dates, frequency, and duration):

Findings of investigation by plant personnel:

Indicate if complaint relates to violation of a CEC requirement:

Date complainant contacted to discuss findings:

Description of corrective measures taken or other complaint resolution:

Indicate if complainant agrees with proposed resolution:

If not, explain:

Other relevant information:

If corrective action necessary, date completed:

Date first letter sent to complainant: _____(copy attached)

Date final letter sent to complainant: _____(copy attached)

This information is certified to be correct.

Plant Manager's Signature: _____ Date: _____

(Attach additional pages and supporting documentation, as required.)

FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made which provide the flexibility to deal with the specific situation and project setting which that exist at the time of closure. LORS pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

There are at least three circumstances in which a facility closure can take place, planned closure, unexpected temporary closure and unexpected permanent closure.

PLANNED CLOSURE

A planned closure occurs at the end of a project's life, when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

UNEXPECTED TEMPORARY CLOSURE

An unplanned unexpected temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster, or an emergency.

UNEXPECTED PERMANENT CLOSURE

An unplanned unexpected permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unexpected closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned.

GENERAL CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site.
2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;
3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and
4. address conformance of the plan with all applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

Also, in the event that there are significant issues associated with the proposed facility closure plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Commission may hold public hearings as part of its approval procedure.

In addition, prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner and the Commission CPM for the purpose of discussing the specific contents of the plan.

As necessary, prior to, or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities, until Commission approval of the facility closure plan is obtained.

UNEXPECTED TEMPORARY CLOSURE

In order to ensure that public health and safety and the environment are protected in the event of an unexpected temporary facility closure, it is essential to have an on-site contingency plan in place. The on-site contingency plan will help to ensure that all necessary steps to mitigate public health and safety, and environmental impacts, are taken in a timely manner.

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and

recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days (unless other arrangements are agreed to by the CPM), the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment (also see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management).

In addition, consistent with requirements under unexpected permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the on-site contingency plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports.

In the event of an unexpected temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

If the CPM determines that a temporary closure is likely to be permanent, or for a duration of more than twelve months, a closure plan consistent with that for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period of time agreed to by the CPM).

UNEXPECTED PERMANENT CLOSURE

The on-site contingency plan required for unexpected temporary closure shall also cover unexpected permanent facility closure. All of the requirements specified for unexpected temporary closure shall also apply to unexpected permanent closure.

In addition, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the unlikely event of abandonment.

In the event of an unexpected permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the status of all closure activities.

A closure plan consistent with that for a planned closure shall be developed and submitted to the CPM within 90 days of the permanent closure (or other period of time agreed to by the CPM).

DELEGATE AGENCIES

To the extent permitted by law, the Energy Commission may delegate authority for compliance verification and enforcement to various state and local agencies that have expertise in subject areas where specific requirements have been established as a condition of certification. If a delegate agency does not participate in this program, the Energy Commission staff will establish an alternative method of verification and enforcement. Energy Commission staff reserves the right to independently verify compliance.

In performing construction and operation monitoring of the project, the Energy Commission staff acts as, and has the authority of, the Chief Building Official (CBO). The Commission staff retains this authority when delegating to a local CBO. Delegation of authority for compliance verification includes the authority for enforcing codes, the responsibility for code interpretation where required, and the authority to use discretion, as necessary, in implementing the various codes and standards.

Whenever an agency's responsibility for a particular area is transferred by law to another entity, all references to the original agency shall be interpreted to apply to the successor entity.

ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Commission Decision. The specific action and amount of any fines the Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, inadvertence, unforeseeable events, and other factors the Commission may consider.

Moreover, to ensure compliance with the terms and conditions of certification and applicable laws, ordinances, regulations, and standards, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1230 et. seq., but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by current law or regulations.

INFORMAL DISPUTE RESOLUTION PROCEDURE

The following procedure is designed to informally resolve disputes concerning interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate this procedure for resolving a dispute. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents.

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1230 et. seq., but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and conditions of certification as approved by the Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be referred to the full Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and conditions of certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven (7) working days of the CPM's request, provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within forty-eight (48) hours, followed by a written report filed within seven (7) days.

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within fourteen (14) days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
2. secure the attendance of appropriate Energy Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;
3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and,
4. after the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et. seq.

FORMAL DISPUTE RESOLUTION PROCEDURE-COMPLAINTS AND INVESTIGATIONS

If either the project owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint or a request for an investigation with the Energy Commission's General Counsel. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1230 et. seq.

The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, sections 1232 - 1236).

POST CERTIFICATION CHANGES TO THE COMMISSION DECISION: AMENDMENTS, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES

The project owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the project design or operational requirements; and 3) transfer ownership or operational control of the facility.

A petition is required for **amendments** and for **insignificant project changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of change process applies are explained below.

AMENDMENT

A proposed change will be processed as an amendment if it involves a change to the requirement or protocol (and in some cases the verification) portion of a condition of certification, an ownership or operator change, or a potential significant environmental impact.

INSIGNIFICANT PROJECT CHANGE

The proposed change will be processed as an insignificant project change if it does not require changing the language in a condition of certification, have a potential for significant environmental impact, and cause the project to violate laws, ordinances, regulations or standards.

VERIFICATION CHANGE

The proposed change will be processed as a verification change if it involves only the language in the verification portion of the condition of certification. This procedure can only be used to change verification requirements that are of an administrative nature, usually the timing of a required action. In the unlikely event that verification language contains technical requirements, the proposed change must be processed as an amendment.

KEY EVENT LIST

PROJECT _____

DATE ENTERED _____

DOCKET # _____

PROJECT MANAGER _____

<i>EVENT DESCRIPTION</i>	<i>DATE ASSIGNED</i>
Date of Certification	
Start of Construction	
Completion of Construction	
Start of Operation (1st Turbine Roll)	
Start of Rainy Season	
End of Rainy Season	
Start T/L Construction	
Complete T/L Construction	
Start Fuel Supply Line Construction	
Complete Fuel Supply Line Construction	
Start Rough Grading	
Complete Rough Grading	
Start of Water Supply Line Construction	
Completion of Water Supply Line Construction	
Start Implementation of Erosion Control Measures	
Complete Implementation of Erosion Control Measures	

V. ENGINEERING ASSESSMENT

The broad engineering assessment conducted for the Midway Sunset Power Project is comprised of individual analyses affecting the facility design, as well as the efficiency and the reliability of the proposed power plant. The subjects of this assessment include not only the power generating equipment, but also other project-related elements such as the associated linear facilities (the transmission line, the natural gas supply pipeline, the raw water supply pipeline, and the potable water line).

A. FACILITY DESIGN

SUMMARY OF THE EVIDENCE

The facility design portion of the engineering assessment combines four technical topic areas: civil engineering; structural engineering; mechanical engineering; and electrical engineering. (Ex. 15, p. 365.)

The proposed project will use Applicant's existing facilities and pipelines; these include:

- existing rights-of-way and construction corridors;
- hazardous materials storage and management systems;
- construction utilities;
- plant supervisory, operations, maintenance and security personnel;
- natural gas supply lines;
- demineralizer, wastewater neutralization, and tankage systems;
- administrative/control room building, warehouse/maintenance facilities;
- fire water system for back up purposes; and
- potable water system. (Exs. 15, p. 366; 1, p.3.4-1.)

The project site is located in Seismic Zone 4, a designation indicating the highest level of potential earthquake-related shaking in California. (Ex. 15, p. 366.) To address this potentiality, major structures and components will be designed and

constructed in conformance with the analysis requirements of the most recent edition of the California Building Code.¹³ (Ex. 15, p. 368-69.):

Major mechanical features of the Midway Sunset project include:

- two 170 MW combustion turbine generators burning natural gas, with dry-low NO_x combustors used to control NO_x;
- two heat recovery steam generators with 120-foot tall stacks;
- a 160 MW steam turbine generator;
- a seven cell wet cooling tower; and
- a 50,000 gallon aqueous ammonia storage tank. (Exs.15, pp. 366; 376; Ex. 1, p. 3.4-11.)

The mechanical systems will be designed in accordance with applicable codes and standards. (Exs.15, pp. 367-369.)

The major electrical equipment associated with the project includes:

- a new 230 kV switchyard; and
- a new 19-mile-long, 230 kV transmission line connecting with PG&E's transmission system at the Midway Substation. (Ex. 15, p. 366.)

The evidence of record concerning design of the facility also includes the ancillary linear facilities. (Ex. 15, p. 371-72.) Applicant proposes that West Kern County Water District (WKWD) will supply water for the proposed project. (Ex. 1, p. 3.4-20.) Untreated water will be conveyed via a new, 1.8-mile, water-supply pipeline extending from existing WKWD facilities located east of the power plant site and adjacent to State Highway 119. (Exs. 1, [Vol. 1], /3.4-19; 18, p. DR4-3.) A water reclamation system will collect cooling tower blowdown, HRSG boiler blowdown, and evaporative cooler blowdown. (Ex. 1, [Vol. 1], /3.4-21.) The facility blowdowns will be routed directly to Applicant's existing facility for utilization. (*Ibid.*) Water will be collected from washdown, storm water and

¹³ The 1998 edition of the California Building Code is currently in effect. (Ex. 19, p. 291.) Should this version be superseded by the time that the final plans for Midway Sunset are submitted, however, the successor version will be used. (*Ibid.*) Equipment items and components subjected to dynamic-analysis requirements will be described in detail prior to the start of that increment of construction of which they are a part. (Condition **STRUC-1**.)

equipment drains. (*Ibid.*) These streams will be sent to a new oily water separator prior to discharge to the storm water retention area. (*Ibid.*)

Natural gas will be conveyed to the proposed power plant using two existing pipelines that are sufficient to supply the old facility and Applicant's proposed facility. (Ex. 15, p. 371.) No new gas pipeline will be constructed. (*Ibid.*)

The testimony of record indicates the Conditions of Certification will ensure that the final design and construction of the project complies with applicable standards. Contained in these Conditions are requirements specifying the roles, qualifications, and responsibilities of engineers overseeing project design and construction. The Conditions also require that no element of construction proceeds without approval from the local building official and that qualified special inspectors perform appropriate inspections required by the California Building Code. (See Condition **STRUC-1**.)

The environmental impacts of the project are discussed elsewhere in this Decision (for example, under topics such as Biological Resources and Noise). The testimony indicates that Facility Design considerations do not pose the potential for creating cumulative adverse impacts.

Finally, the testimony addresses potential project closures under three scenarios: planned closure, unexpected temporary closure, and unexpected permanent closure. The testimony of record indicates that the general-closure provisions contained in the Compliance Plan (*ante*) and supplemented by Condition of Certification **GEN-9** are sufficient to adequately address and minimize any potential adverse impacts associated with project closure. (Ex. 15, pp. 372-74.)

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The evidence of record contains sufficient information to establish that the proposed facility can be designed and constructed in conformity with the applicable engineering laws, ordinances, regulations, and standards set forth in the appropriate portion of Appendix A of this Decision.
2. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed both in accordance with applicable law and in a manner that protects environmental quality and public health and safety concerns.
3. The Facility Design aspects of the proposed project do not create potential cumulative impacts.
4. The Conditions of Certification below, and the provisions of the Compliance Plan contained in this Decision, set forth requirements to be followed in the event of the planned, or the unexpected temporary, or the unexpected permanent closure of the facility.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 1998 California Building Code (CBC)¹⁴ and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval. The CBC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification **TSE-1, TSE-2 and TSE-3** in the **Transmission System Engineering** Section of this document.

Protocol: In the event that the Western MSCC project is submitted to the CBO when a successor to the 1998 CBC is in effect, the 1998 CBC provisions identified herein shall be replaced with the applicable

¹⁴ The Sections, Chapters, Appendices and Tables, unless otherwise stated, refer to the Sections, Chapters, Appendices and Tables of the 1998 California Building Code (CBC).

successor provisions. *Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern.* Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, Section 109 — Certificate of Occupancy.]

GEN-2 The project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List, and a Master Specifications List. The schedule shall contain a description of, and a list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major structures and equipment in **Table 1: Major Equipment List** below). To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Table 1: Major Equipment List

Equipment/System	Qty	Size/capacity*	Service/Remarks
Combustion Turbine Generator (CTG)	2	170 MW each	DLN combustion control, inlet evaporative cooling
Heat Recovery Steam Generator (HRSG)	2	1,800 psig HP steam	Three pressures with reheat and supplementary firing
HRSG Stack	2		19 dia. x 140 high
Cooling Tower	1	7 Cells	Serve as fire water reservoir
Aqueous Ammonia Storage Tank	1	50,000 gal.	19 wt. % ammonia solution for NO _x control
SCR System including Ammonia Injection Package	2	NO _x reduction	NO _x control
Oxidation Catalyst	2		VOC and CO control
HP Boiler Feedwater Pumps	4	1,115 gpm	HP feed (Two x 100% per HRSG capacity)
Steam Turbine Generator (STG)	1	182 MW	Condensing reheat STG
Deaerating Surface Condenser	1	980 MMBtu/hr	

Equipment/System	Qty	Size/capacity*	Service/Remarks
Vacuum Condensate Pump	2	2,483 gpm	Vertical (2-100% capacity)
Cooling Water Pumps	2	53,230 gpm	Vertical (2-50% capacity)
Fuel Gas Filter Separator	2	26,476 SCFM	Natural gas fuel
Closed Loop Cooling water Pump	2	2,608 gpm	Generator and lube oil cooling (2-100% capacity)
Closed Loop Cooling Water Heat Exchangers (new)	2	42 MMBtu/hr	Generator and lube oil cooling (2-100% capacity)
Continuous Emission Monitoring System (CEMS)	2	NO _x , CO & O ₂	HRSG stack

*All capacities and sizes are approximate and may change during project final design.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The project owner shall provide schedule updates in the Monthly Compliance Report.

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection, equivalent to the fees listed in the 1998 CBC, Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees. If Kern County has adjusted the CBC fees for design review, plan check and construction inspection, the project owner shall pay the adjusted fees.

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, design calculations, specifications, or soil reports. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fees have been paid.

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a Resident Engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, / 4-209, Designation of Responsibilities)]. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification **TSE-1, TSE-2 and TSE-3** in the **Transmission System Engineering** Section of this document.

Protocol: The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical

and electrical portions of the project respectively. A project may be divided into parts, provided each part is clearly defined as a distinct unit. Separate assignment of general responsible charge may be made for each designated part.

The RE shall:

1. Monitor construction progress to ensure compliance with LORS;
2. Ensure that construction of all the facilities conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans, and specifications;
3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;
4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and any other required documents;
5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and
6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

The RE shall have the authority to halt construction and to require changes or remedial work, if the work does not conform to applicable requirements.

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the name, qualifications and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO s approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) are subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO s approval of the new engineer within five days of the approval.

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.]. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification **TSE-1, TSE-2 and TSE-3** in the **Transmission System Engineering** Section of this document.

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all engineers assigned to the project. [1998 CBC, Section 104.2, Powers and Duties of Building Official.]

If any one of the designated engineers is subsequently

reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Protocol: A: The civil engineer shall:

Design, or be responsible for design, stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and

Provide consultation to the RE during the construction phase of the project, and recommend changes in the design of the civil works facilities and changes in the construction procedures.

Protocol: B: The geotechnical engineer or civil engineer, experienced and knowledgeable in the practice of soils engineering, shall:

1. Review all the engineering geology reports, and prepare final soils grading report;
2. Prepare the soils engineering reports required by the 1998 CBC, Appendix Chapter 33, Section 3309.5 — Soils Engineering Report, and Section 3309.6 — Engineering Geology Report;
3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 1998 CBC, Appendix Chapter 33, section 3317, Grading Inspections;
4. Recommend field changes to the civil engineer and RE;
5. Review the geotechnical report, field exploration report, laboratory tests, and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load; and
6. Prepare reports on foundation investigation to comply with the 1998 CBC, Chapter 18, section 1804, Foundation Investigations.

This engineer shall be authorized to halt earthwork and to require

changes; if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations.
[1998 CBC, section 104.2.4, Stop orders.]

Protocol: C: The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;
2. Provide consultation to the RE during design and construction of the project;
3. Monitor construction progress to ensure compliance with LORS;
4. Evaluate and recommend necessary changes in design; and
5. Prepare and sign all major building plans, specifications and calculations.

Protocol: D: The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Energy Commission's Decision.

Protocol: E: The electrical engineer shall:

1. Be responsible for the electrical design of the project; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 1998 CBC, Chapter 17, Section 1701, Special Inspections, Section, 1701.5 Type of Work (requiring special inspection), and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification **TSE-1, TSE-2 and TSE-3** in the **Transmission System Engineering** Section of this document.

Protocol: The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Observe the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).

Verification: At least 15 days prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next Monthly Compliance Report.

If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

GEN-7 The project owner shall keep the CBO informed regarding the status of engineering and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the as-built and as graded plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up as-built drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the as-built drawings [1998 CBC, Section 108, Inspections.]

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans.

GEN-9 The project owner shall file a closure/decommissioning plan with Kern County and the CPM for review and approval at least 12 months (or other mutually agreed to time) prior to commencing the closure activities. If the project is abandoned before construction is completed, the project owner shall return the site to its original condition.

Protocol: The closure plan shall include a discussion of the following:

1. The proposed closure/decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
2. All applicable LORS, all local/regional plans, and a discussion of the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;
3. Activities necessary to restore the site if the Western MSCC project decommissioning plan requires removal of all equipment and appurtenant facilities; and
4. Closure/decommissioning alternatives, other than complete restoration of the site.

Verification: At least 12 months prior to closure or decommissioning activities, the project owner shall file a copy of the closure/decommissioning plan with Kern County and the CPM for review and approval. Prior to the submittal of the closure plan, a meeting shall be held between the project owner and the CPM for discussing the specific contents of the plan.

CIVIL-1 Prior to the start of site grading, the project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils report as required by the 1998 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report and Section 3309.6, Engineering Geology Report.

Verification: At least 15 days prior to the start of site grading, the project owner shall submit the documents described above to the CBO for review and approval. In the next Monthly Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible

geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area. [1998 CBC, Section 104.2.4, Stop orders.]

Verification: The project owner shall notify the CPM, within five days, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within five days of the CBO's approval, the project owner shall provide to the CPM a copy of the CBO's approval to resume earthwork and construction in the affected areas.

CIVIL-3 The project owner shall perform inspections in accordance with the 1998 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. All plant site-grading operations shall be subject to inspection by the CBO and the CPM.

Protocol: If, in the course of inspection, it is discovered that the work is not being done in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report detailing all discrepancies and non-compliance items, and the proposed corrective action, and send copies to the CBO and the CPM.

Verification: Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a Non-Conformance Report (NCR), and the proposed corrective action. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following Monthly Compliance Report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the final as-graded grading plans, and final as-built plans for the erosion and sedimentation control facilities [1998 CBC, Section 109, Certificate of Occupancy.]

Verification: Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for:

1. Major project structures;
2. Major foundations, equipment supports and anchorage;
3. Large field fabricated tanks; and
4. Turbine/generator pedestal.

In addition, the project owner shall, prior to the start of any increment of construction, get approval from the CBO of the lateral force procedures proposed for project structures to comply with the lateral force provisions of the CBC.

Protocol: The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required

documents of the designated major structures at least 90 days (or a lesser number of days mutually agreed to by the project owner and the CBO), prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents.]; and

4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [1998 CBC, Section 106.3.4, Architect or Engineer of Record.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of construction, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the nonconforming submittal with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and are in conformance with the requirements set forth in the applicable LORS.

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of

weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and

5. Reports covering other structure activities requiring special inspections shall be in accordance with the 1998 CBC, Chapter 17, Section 1701, Special Inspections, Section 1701.5, Type of Work (requiring special inspection), Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 1998 CBC, Chapter 1, Section 106.3.2, Submittal documents, and Section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.

Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the Monthly Compliance Report, when the CBO has approved the revised plans.

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC. Chapter 16, Table 16—K of the 1998 CBC requires use of the following seismic design criteria: $I^o = 1.25$, $I_p = 1.5$ and $I_w = 1.15$.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of installation of the tanks or vessels containing the above specified quantities of highly toxic or explosive substances that would be hazardous to the safety of the general public if released, the project owner shall submit to the CBO for review and approval, final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-1 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (exclude domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter less than two and one-half inches). The submittal shall also include the applicable QA/QC procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping to the applicable edition of the CBC. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal documents, Section 108.3, Inspection Requests.]

Protocol: The responsible mechanical engineer shall submit a signed and stamped statement to the CBO when:

1. The proposed final design plans, specifications and calculations conform with all of the piping requirements set forth in the Energy Commission's Decision; and
2. All of the other piping systems, except domestic water, refrigeration systems and small bore piping have been designed, fabricated and installed in accordance with all applicable ordinances, regulations, laws and industry standards, including, as applicable:
 - American National Standards Institute (ANSI) B31.1 (Power Piping Code);
 - ANSI B31.2 (Fuel Gas Piping Code);

- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code); and
- Specific City/County code.

The CBO may require the project owner to employ special inspectors to report directly to the CBO to monitor shop fabrication or equipment installation [1998 CBC, Section 104.2.2, Deputies.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CPM, the above listed documents for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Energy Commission's Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation [1998 CBC, Section 108.3 — Inspection Requests.]

Protocol: The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, final design plans, specifications and calculations, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of the CBO plan check approvals to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal-OSHA inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-3 Prior to the start of construction of any heating, ventilating, air conditioning (HVAC) or refrigeration system, the project owner shall submit to the CBO for review and approval the design plans, specifications, calculations and quality control procedures for that system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

Protocol: The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the applicable edition of the CBC. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final plans, specifications and calculations shall include approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS [1998 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the

CBO the required HVAC and refrigeration calculations, plans and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of CBO comments and approvals to the CPM in the next Monthly Compliance Report. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-4 Prior to the start of each increment of plumbing construction, the project owner shall submit for CBO's approval the final design plans, specifications, calculations, and QA/QC procedures for all plumbing systems, potable water systems, drainage systems (including sanitary drain and waste), toilet rooms, building energy conservation systems, and temperature control and ventilation systems, including water and sewer connection permits issued by the local agency. Upon completion of any increment of construction, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 108.3, Inspection Requests, Section 108.4, Approval Required.]

Protocol: The project owner shall design, fabricate and install:

1. Plumbing, potable water, all drainage systems, and toilet rooms in accordance with Title 24, California Code of Regulations, Division 5, Part 5 and the California Plumbing Code (or other relevant section(s) of the currently adopted California Plumbing Code and Title 24, California Code of Regulations); and
2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Division 5, Chapter 2-53, Part 2.

The final plans, specifications and calculations shall clearly reflect the inclusion of approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall stamp and sign all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction

of any of the above systems, the project owner shall submit to the CBO the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the next Monthly Compliance Report following completion of that increment of construction.

ELEC-1 For the 480 volts and higher systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification **TSE-1, TSE-2 and TSE-3** in the **Transmission System Engineering** Section of this document.

Protocol: The following activities shall be reported in the Monthly Compliance Report:

- receipt or delay of major electrical equipment;
- testing or energization of major electrical equipment; and
- the number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for electrical equipment and systems 480 volts and greater, including a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

ELEC-2 The project owner shall submit to the CBO the required number of

copies of items A and B for review and approval and one copy of item C [CBC 1998, Section 106.3.2, Submittal documents.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification **TSE-1, TSE-2 and TSE-3** in the **Transmission Engineering** portion of this document.

Protocol: A. Final plant design plans to include:

1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems;
2. system grounding drawings;
3. general arrangement or conduit drawings; and
4. other plans as required by the CBO.

Protocol: B. Final plant calculations to establish:

1. short-circuit ratings of plant equipment;
2. ampacity of feeder cables;
3. voltage drop in feeder cables;
4. system grounding requirements;
5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;
6. system grounding requirements;
7. lighting energy calculations; and
8. other reasonable calculations as customarily required by the CBO.

Protocol: C. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical equipment installation, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations, for electrical equipment and systems 480 volts and greater enumerated above, including a copy of the signed and stamped statement from the responsible electrical engineer certifying compliance with the applicable

LORS. The project owner shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

B. POWER PLANT RELIABILITY

Applicable law does not establish specific criteria for power plant reliability or procedures for ensuring reliable operation.¹⁵ Nevertheless, the CEC is required to make findings concerning whether the project is likely to be operated in a safe and reliable manner. (Cal. Code of Regs., tit. 20, / 1752 (c).) Generally, a project is considered acceptable if it does not degrade the reliability of the utility system to which it is connected. In this regard, it is necessary to examine whether the Midway Sunset project is likely to achieve a level of reliability similar to that of other power plants on the system.

SUMMARY OF THE EVIDENCE

Applicant proposes to operate Midway Sunset throughout its intended life in baseload and load following unit; it will operate at output levels from 30 to 100 percent of baseload at an overall annual availability factor of 95 percent, or higher.¹⁶ (Exs. 15, p. 394-95.) Power plant systems such as Midway Sunset must be able to operate for extended periods (sometimes for months on end) without shutting down for maintenance or repairs.¹⁷ (Ex. 15, p. 395.) This requirement for equipment availability is typically addressed by strict quality control in machinery design, construction, and installation. (*Ibid.*)

¹⁵ Staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is attached--it exhibits reliability equal to that of other power plants on the system. (Ex. 15, p. 393.)

¹⁶ When the proposed facility is operating at baseload, each of the CTGs and the STG produce approximately one third of the output; any one of the three could continue to operate without the others although the STG would operate at reduced load should a CTG fail. (Ex. 1, / 4.3.2.1)

¹⁷ Midway Sunset plans to sell energy and capacity on the deregulated market and via bilateral contracts. (Ex. 15, pp. 393-94.) In addition, Applicant proposes to provide peaking power and black start capability. (*Ibid.*)

Plant reliability is further assured by providing for plant maintainability and sufficient redundancy of critical equipment, fuel and water availability, and resistance to natural hazards. (Ex. 15, p. 395.) The basic factors influencing a power plant's reliability are the:

- availability and redundancy of critical equipment;
- availability of fuel and water; and
- project's resistance to natural hazards. (*Ibid.*)

Applicant will ensure equipment availability by applying appropriate quality assurance and control (QA/QC) programs during design, procurement, construction and operation of the plant. (Ex. 15, p. 395.) For example, equipment and supplies will be purchased from proven qualified suppliers in accordance with the Applicant's QA plan. Systems and components will be tested and inspected, and the QC program will be audited. (*Ibid.*) During operation, the Applicant will provide for adequate maintenance and repair of all equipment and systems.¹⁸ (Ex. 15, p. 396.)

Moreover, the Applicant has designed the project to use two parallel trains of gas turbine generators/HRSGs/steam turbine generators.¹⁹ (Ex. 15, p. 398.) This design provides for inherent reliability since a failure on one power train should not cause the other train to fail thus allowing the plant to continue to generate (at reduced output). (*Ibid.*) Redundancy of critical equipment will be ensured by

¹⁸ The maintenance program will be an extension of the maintenance program currently employed at its existing facility where Applicant points to a ten-year reliability factor of 99.61 percent and a ten-year availability factor of 97.55 percent as evidence of a successful maintenance program. (Ex. 15, p. 396.) In conjunction with an overall plant quality control program, Staff expects that this will ensure that the project will be adequately maintained to ensure acceptable reliability. (Ex. 15, p. 396.)

¹⁹ Both the candidate gas turbines that may be employed in the project have been on the market for several years now, and can be expected to exhibit typically high availability. (Ex. 15, p. 394.) Thus Staff found that Applicant's prediction of an annual availability factor of 95 percent or greater was reasonable and that Applicant's overall construction plans were likely to yield an adequately reliable plant. (*Ibid.*)

provision of the following plant components in two-or-three-set, 100 or 50 percent capacity, units:

- boiler feed pumps (two sets, 100%),
- air compressors (two sets, 100%),
- closed loop cooling water heat exchangers (two sets, 100%),
- closed loop water pumps (two sets, 100%),
- raw water transfer pumps (three sets, 50%). (Ex. 15, pp. 395-96.)

Applicant s proposed maintenance and QA/QC programs will meet industry standards, and staff expects that this will allow the project to be adequately maintained to ensure acceptable reliability. (Ex. 15, pp. 395-96.)

The evidence further indicates that there are and will continue to be adequate natural gas supplies and pipeline capacity to meet project needs. (Ex. 15, p. 396.) Water for the Midway Sunset Power Project will be supplied by the WKWD under a long-term contract. (Exs. 15, p. 396; 1, p. 1-9.) Water requirements for the proposed project amount to approximately of approximately 3,260-acre feet per year (AFY).²⁰ (Ex. 1, p. 1-9.) WKWD s allotment of State Water Project (SWP) water, along with its water-banking program, represents a substantial water source that Staff believes will yield a reliable supply. (Ex. 15, p. 397.)

Moreover, the criteria specified in the preceding Facility Design and Geology and Paleontology portions of this Decision will ensure that the Midway Sunset Power Project will be reasonably resistant to natural hazards such as flooding and seismic shaking. (Ex. 15, p. 397.) Staff concluded that there is no special

²⁰ Potable water and water for steam cycle makeup will be supplied from Applicant s existing plant pipeline. (Ex. 15, p. 397.)

concern with power plant functional reliability affecting the electric system s reliability due to seismic events.²¹ (*Ibid.*)

FINDINGS AND CONCLUSION

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. There are no established specific criteria governing power plant reliability or procedures for ensuring reliable operation.
2. It is reasonable to use industry standards in assessing the reliability of the proposed project.
3. The estimated availability factor for the Midway Sunset Power Project is from 95 percent or above, somewhat above industry norms.
4. The equipment availability, redundancy, maintenance, quality assurance, quality control, and facility design factors described in the evidence of record make it likely that the Midway Sunset Power Project will meet industry norms for reliability.
5. Fuel supplies for the proposed project are available in quantities sufficient to ensure reliable project operation.
6. Water supplies for the proposed project, are available in sufficient quantities to meet project needs.
7. The project will not degrade the overall reliability of the electrical system nor contribute to a cumulative adverse impact to such system.

There are no conditions associated with power plant reliability. We conclude, however, that the project is likely to operate in an acceptably reliable manner.

²¹ The project site does not lie within a 100-year flood zone and Applicant will design Midway Sunset to withstand a 25-year, 24-hour storm. (Ex. 15, p. 397.) Although the project site lies within Seismic Zone 4, no active earthquake faults lie nearby, and the site will be designed and constructed to the latest appropriate LORS. (Ex. 15, p. 397.)

C. POWER PLANT EFFICIENCY

The California Environmental Quality Act (CEQA) and its implementing regulations require us to consider a proposed power plant's:

- energy requirements and energy use efficiency;
- effects on local and regional energy supplies and resources;
- requirements for additional energy supply capacity; and
- compliance with existing energy standards, and whether there are any feasible alternatives that could reduce a wasteful, inefficient, and unnecessary consumption of energy. (Pub. Resources Code, / 21002.1; CCR, tit. 14, Appendix F.)

SUMMARY OF THE EVIDENCE

The evidence of record addresses:

- whether the Midway Sunset Power Project will likely present any adverse impacts to energy resources;
- whether any adverse impacts would likely be significant and; if so,
- whether feasible mitigation measures exist to adequately reduce or eliminate them.

In this context, the energy resource of concern is natural gas, the fuel supply for the project. (Ex. 15, p. 402.) The proposed project will burn natural gas at a nominal rate up to 94 billion Btu per day (lower heating value). (*Ibid.*) Staff concluded that supplies of natural gas and the means for transporting the fuel to the proposed project are more than adequate from either the existing Kern River/Mojave, or Southern California Gas Line 85 pipelines. (Ex. 15, pp. 402-03.)

Modern gas turbines embody the most fuel-efficient generating technology available today. (Ex. 15, p. 404.) Likewise, the F-class gas turbines the proposed project plans to employ represent some of the most modern and efficient machines available. (*Ibid.*)

The Midway Sunset Power Project is intended to generate baseload, load following, peaking power and energy, and black start capability. (Ex. 15, p. 402.) It will be configured as a compound-train, combined cycle power plant, in which electricity is generated by two combustion gas turbines (CTG) and by a steam turbine generator (STG). (Ex. 15, p. 403.) The STG operates on heat energy recuperated from the CTG s exhaust. (*Ibid.*) By recovering this heat, which would otherwise be lost to exhaust, the efficiency of any combined cycle power plant is increased considerably from that of either a CTG or STG operating alone. (*Ibid.*)

The number of turbines further contributes to efficiency at part load. (Ex. 15, p. 403.) CTG s operate most efficiently at one particular output level, which typically is full load. (*Ibid.*) Whenever less power is needed, the unit must be throttled back with a consequential reduction in efficiency. (*Ibid.*)

However, the Midway Sunset Power Project is configured so that the power plant operator will have the option of shutting off one gas turbine. (Ex. 15, p. 403-04.) This will allow the plant to generate at less than full load while maintaining optimum efficiency. (*Ibid.*) Loads down to 50 percent of full load allow one CTG and the STG to operate at full load and maintain peak efficiency. (*Ibid.*)

The evidence further indicates that Staff and Applicant completed a comprehensive analysis of both the technology and alternatives available to the proposed project. (Ex. 15, p. 404.) Staff concluded that the project configuration and generating equipment represent the most efficient feasible combination to satisfy the objectives of the proposed project. (Ex. 15, pp. 404-06.)

Further, Staff concluded that supplies of natural gas and the means for transporting the fuel to the proposed project are more than adequate when considered with other projects proposed in close proximity. (Ex. 15, p. 406.)

These CEC approved projects include La Paloma (Docket No, 98-AFC-2), Sunrise (Docket No.98-AFC-4), and Elk Hills (Docket No. 99-AFC-1). (*Ibid.*)

Finally, the criteria specified in the preceding Facility Design portion of this Decision will ensure that the proposed project will be reasonably resistant to natural hazards such as flooding and seismic shaking.

Staff concluded that the Midway Sunset project would:

- not pose the potential for cumulative adverse impacts to the electrical system;
- be built to consume energy in the most efficient manner practicable;
- create no adverse impacts on energy supplies or resources;
- not require additional sources of energy supply; and
- not consume energy in a wasteful or inefficient manner. (Ex. 15, p. 407.)

FINDINGS AND CONCLUSION

Based on the uncontroverted evidence of record, we find and conclude as follows:

1. Applicant will employ gas turbines that are among the most fuel-efficient currently available.
2. The project will not create a substantial increase in demand for natural gas.
3. Available gas supplies exceed the fuel requirements of the proposed project.
4. The proposed project s compound-train, combined cycle design will allow the power plant to generate electricity at less than full load while maintaining optimum efficiency.
5. The operational efficiency of the proposed project is substantially equal or exceeds that of other available technologies.
6. The Midway Sunset Power Project will not consume natural gas in a wasteful, inefficient, or unnecessary manner.

We therefore conclude that the proposed project will cause no significant direct or indirect adverse impacts upon energy resources.

D. TRANSMISSION SYSTEM ENGINEERING

In addition to the power plant portion of Midway Sunset, Applicant will construct a transmission tie line as an appurtenant facility. (See Pub. Resources Code, §§ 25120, 25110.) The Commission's jurisdiction includes "...any electric power line carrying electric power from a thermal power plant...to a point of junction with any interconnected transmission system." (Pub. Resources Code, § 25107.)

The Midway Sunset project will access the California electricity market through a new, 230 kV switchyard and a 19-mile long, bundled conductor, transmission line to PG&E's Midway Substation. (Ex. 15, p. 411.) The California Independent System Operation (Cal-ISO) is responsible for ensuring electric system reliability for all participating transmission owning utilities and determines both the standards necessary to achieve reliability and whether a proposed project conforms with those standards. (Ex. 15, p. 409.) The Commission relies on the Cal-ISO's determinations to make its findings related to applicable reliability standards and the need for additional transmission facilities. (*Ibid.*)

Accordingly, the CEC's examination of the Transmission System Engineering factors includes determining whether the transmission intertie facilities and the whole of the action are likely to conform to all applicable laws, ordinances, regulations and standards (LORS). (Ex. 15, p. 409; see Cal. Code of Regs., tit. 14, § 15378.) These LORS are in place to ensure safe and reliable electric power transmission and, if deemed appropriate, what mitigation may be needed. As explained below, the Commission's review has been coordinated with the evaluation performed by the Cal-ISO in order to determine the project's potential effects upon the interconnected electrical grid.

SUMMARY OF THE EVIDENCE

Description

Applicant plans to connect the project to the Midway substation through a new 230 kV switchyard and transmission line with a bundled conductor approximately 19 miles long. (Exs. 15, p. 411; 1, pp. 1-3 & 3.4-7.) The project switchyard will be constructed in a ring bus configuration with six circuit breakers²²; three new generators, the new transmission line and the outlet line from the existing power plant will be connected to this ring bus. (Exs. 15, p. 411; 1, pp. 3.4-15 to 3.4-17). Staff considers this project configuration to be acceptable. (Ex. 15, p. 411.)

The proposed transmission line will be a 230 kV line overhead line with a bundled conductor extending approximately 19 miles from the proposed power plant switchyard to PG&E's Midway substation where it will terminate at a new 230 kV bay. (Ex. 15, pp. 411-12.) Each phase of the bundled three-phase line will be made of 1590 kcmil aluminum conductor. (Ex. 15, p. 412.) The normal rating for this conductor at 230 kV is approximately 531 MW. (*Ibid.*) Thus, the total expected capacity of the transmission line under normal conditions would be approximately 1,062 MW. (Ex. 1, [Vol. 1], p. 3.6-1.)

Transmission line support will be provided by approximately 141 poles.²³ (Exs. 15, p. 412; 1, pp. 3.6-2, 3.6-3). Staff found the configuration of conductors and support structures to be acceptable. (Ex. 15, p. 412.)

²² Short-circuit analyses are conducted to assure that breaker ratings are sufficient to withstand high levels of current during a fault (such as when a line touches the ground). (Ex. 15, p. 411.) The switchyard components will be rated in accordance with the results of a short-circuit study. (*Ibid.*) The acceptability of breaker ratings will be verified during the compliance phase of the certification process. (*Ibid.*)

²³ Several types of poles will support the transmission line, including single shaft tubular steel poles, heavy and light angles, dead-end structures; T-tops will be used to cross under existing lines. (Ex. 15, p. 412.)

Existing facilities and related systems in close proximity to Midway Sunset's interconnection at the Midway Substation include:

- Applicant's 225 MV project's 230 kV line to the Midway substation;
- La Paloma Generating Project's 230 kV line to the Midway substation;
- Diablo — Midway's #2 500 kV transmission line; and
- Numerous other transmission lines entering the Midway Substation. (Exs. 15, p. 412; 1, p. 3.6-2.)

Role of Cal-ISO

The interconnection of a new generator (and any associated modifications to the transmission system), if not properly designed and operated, could adversely impact the reliable operation of the state's electrical power system. The primary roles of the Cal-ISO, as they pertain to the interconnection of new generation, are to ensure and to coordinate the reliable operation of the Cal-ISO controlled electrical grid. (Ex. 15, p. 409.) To achieve these goals, the Cal-ISO coordinates the planning of modifications to the grid to ensure they meet the Cal-ISO's Grid Planning Criteria. (*Id.*; pp. 409-10.) These criteria essentially incorporate all Western Systems Coordinating Council (WSCC) Reliability Criteria, the North American Electric Reliability Council (NERC) Planning Standards, and local-area-reliability-criteria. (*Id.*; at pp. 409-11.)

Commission staff relies on the Cal-ISO's determinations in formulating recommendations to the Commission. (Ex. 15, p. 409.) The Commission's review process includes Cal-ISO's determinations concerning conformance with applicable reliability standards, as well as the need for additional transmission facilities and any attendant environmental review necessitated by a particular project. (*Ibid.*)

On August 30, 2000, Cal-ISO gave its preliminary approval for Midway Sunset after reviewing the project's System Impact Report prepared by PG&E, which owns the transmission system. (Exs. 15, p. 409, 412; 20, p. 1.) On December 18, 2000, Cal-ISO granted final approval, by letter, based on its review of PG&E's Detailed Facilities Study (DFS).²⁴ (Ex. 20.)

Cal-ISO concurred with PG&E's findings that interconnection of the Midway Sunset generation project would cause overloading of PG&E's Midway Substation's 500/230 kV transformer banks. (Ex. 20, p. 2; see *also* Ex. 15, pp. 412-14.) Bank 12 (1120 MVA) will experience a 5 percent overload under Heavy Spring normal conditions, and both banks would experience emergency overloads under all conditions studied (Heavy Summer, Heavy Spring, and Light Winter).²⁵ (Ex. 20, p. 2; Ex. 24, pp. 3-4.)

Mitigation measures required for overloading of the 500/230 kV banks will require:

- additional remedial action schemes;²⁶
 - other generation curtailment by participating generators;
 - adoption of emergency ratings for the existing 500/230 kV transformer banks, or
 - replacement and or addition of a new bank at the Midway Substation.
- (Ex. 20, p. 3.)

²⁴ The DFS is conducted in advance of potential system changes such as the addition of the proposed project into the transmission system in order to prevent reliability criteria violations such as thermal overloads, voltage violations (voltages too high or low), and electric system instability due to excessive oscillations. (Ex. 15, p. 413.) Criteria standards are set by the Cal-ISO, and other regulating authorities. (*Ibid.*)

²⁵ Cal-ISO concluded that the Midway Substation's 500/230kV transformer banks would be overloaded most critically with an outage of the parallel bank in spring and winter even without the proposed project. (Ex. 20, p. 3.)

²⁶ RAS is an automatic control provision that is employed to prevent emergency overloads. (Ex. 20, p. 3.)

Staff concluded that no downstream facilities were found needed to interconnect the proposed project and that Condition **TSE-1 (h)** below, ensures that Midway Sunset will participate in any Cal-ISO required RAS. (Ex. 15, p. 413.)

Alternatives

The evidence demonstrates that Applicant analyzed two potential transmission line routes that were determined to be undesirable. (Ex. 15, p. 414.) One alternative transmission line route was a connection to the Sunrise Power Project (98-AFC-4) and from there to the Midway Substation. (*Ibid.*) The other alternate transmission line route connected to the La Paloma Generating Project (98-AFC-2) and from there to the Midway Substation. (*Ibid.*) Since it is proposed that Sunrise will interconnect to La Paloma, both alternatives would result in all three projects connecting to the Midway Substation through lines on one transmission line tower structure. (*Ibid.*) Thus, a single line outage could jeopardize the delivery of 2000 MW of generation to the grid. (Ex. 15, p. 414.) Connecting all three projects on one tower structure would increase spinning reserve requirements in California under average load conditions and could increase electricity costs. (Exs. 15, p. 414; 1, pp. 3.11-15 & 3.11-16.)

Cumulative Impacts

Staff found that power plants at Morro Bay (OO-AFC-12), Sunrise, La Paloma, and Elk Hills (99-AFC-1) would significantly impact the identical transmission facilities as the Midway Sunset project.²⁷ (Ex. 15, p. 415) Nevertheless, of the Kern County projects, Pastoria (99-AFC-7) is electrically distant, and the SIS

²⁷ Cal-ISO found that there were substantial changes in the assumptions for the DFS compared to the SIS. The latter assumed that the proposed project would be the fourth generation project connected to Midway Substation (following LaPaloma, Sunrise and Elk Hills.) (Ex. 20, p. 1.) Instead, the former and more current DFS assumes that Midway Sunset will be third in the queue and Elk Hills will be fourth due to a change in PG&E's generation interconnection queue. (*Ibid.*) The original System Impact Study (SIS) provided in the Midway Sunset AFC included all Kern County projects plus Morro Bay. (Ex. 15, p. 414-16.)

found that certain required actions would prevent the overload of several electric facilities in the area. (*Ibid.* Staff's review determined that no other power plants in northern or southern California could be expected to create any cumulative impacts with the proposed project. (Ex. 15, p. 415.)

Staff concluded that operation of the proposed project will not result in the need for new facilities in regions north of Path 15 or south of Path 26 beyond those already identified by projects proposed in those regions.²⁸ (Ex. 15, p. 415.) Hence, Staff concluded that the proposed project does not cause significant cumulative impacts. (*Ibid.*)

Closure

Before generating facilities are permitted to provide power to the California Power Exchange, generator standards must be met and power plant operators must commit to comply with instructions of the Cal-ISO dispatchers. Participating generators must sign a Participating Generator Agreement. (Ex. 15, p. 416.) The evidence indicates that procedures for planned, unexpected temporary and unexpected permanent closure are developed as part of this process to establish coordination between the generator, the PTO, and the Cal-ISO. (*Ibid.*)

Furthermore, rules promulgated by the California Public Utilities (PUC) also govern project closure. (Ex. 15, p. 416.) In addition, the Compliance Plan incorporated as part of this Decision contains additional provisions ensuring that project closure will comply with applicable laws, ordinances, regulations, and standards, and that system safety and reliability will not be jeopardized. (*Ibid.*)

²⁸ Path 15 refers to two 500 kV lines from the Midway Substation to the Los Banos substation (South to North) and four 230 kV lines heading north from the Gregg substation. (Ex. 15, p.415, n.1.) Path 26 refers to the three 500 kV lines from the Midway Substation to the Vincent Substation (North to South). (Ex. 15, pp. 415-16.) Midway Substation lies between these two defined transmission paths. (*Ibid.*) Path 15 limits the amount of power that flows from generators electrically south of Midway Substation to areas electrically north, and Path 26 provides the opposite limitation from north to south. (*Ibid.*)

FINDINGS AND CONCLUSION

Based on the uncontroverted evidence of record, we find and conclude as follows:

1. Cal-ISO has determined that interconnecting the Midway Sunset Power Project at the Midway Substation will create adverse impacts to the reliability of the electrical system.
2. Cal-ISO has approved Midway Sunset Power Project's interconnection to the Midway Substation subject to its consent to join certain remedial action schemes that will mitigate any adverse impacts to the reliability of the electrical system to less than significant.
3. Cal-ISO has determined that interconnecting the Midway Sunset Power Project will not require the construction of additional transmission facilities downstream of the Midway Substation.
4. The Midway Sunset Power Project will operate according to remedial action schemes specified by the Cal-ISO.
5. Cal-ISO's review is based on the final Detailed Facilities Study prepared by PG&E.
6. The proposed outlet line from the project to the point of interconnection is designed to transport approximately 500 MW in an acceptably reliable manner.
7. There are no cumulative impacts arising from the Midway Sunset Power Project beyond those previously identified by proposed projects impacting Paths 15 and 26; and no additional transmission facilities will be required.
8. Conditions of Certification enumerated below will ensure that the transmission aspects of the Midway Sunset Power Project will be designed, constructed, and operated to conform with applicable LORS, which are identified in Appendix A of this Decision.

We therefore conclude that interconnection of the project at the Midway Substation is acceptable, and that it will not result in the violation of any regulatory criteria pertinent to transmission system engineering.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to requirements listed below. The substitution of Compliance Project Manager (CPM) approved equivalent equipment and equivalent switchyard configurations are acceptable.

- a) The power plant switchyard, outlet line and termination shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95, Title 8, CCR, Articles 35, 36 and 37 of the, High Voltage Electric Safety Orders, National Electric Code (NEC), and related Industry Standards.
- b) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.
- c) The Western MSCC 230 kV switchyard shall include six circuit breakers in a ring bus scheme.
- d) The new transmission line will be a 230 kV overhead line with a bundled conductor terminating at the Midway substation.
- e) Termination facilities at the interconnection shall comply with applicable Cal-ISO and PG&E interconnection standards (PG&E Interconnection Handbook and CPUC Rule 21).
- f) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.
- g) The outlet line will use conductors similar to the 1590 kcmil AAC conductors.
- h) The applicant shall provide a Detailed Facilities Study including a description of remedial action scheme sequencing and timing and an executed Generator Special Facilities Agreement (GSFA) for the transmission interconnection with PG&E. The Detailed Facilities Study and GSFA shall be coordinated with the Cal-ISO.
- i) The applicant shall consult with the CDWR to insure that the

impacts of the Western MISC interconnection and operation on CDWR resources is minimized.

Verification: At least 60 days prior to start of construction of transmission facilities, the project owner shall submit for approval to the CPM:

- a) Design drawings, specifications and calculations conforming with CPUC General Order 95 and related industry standards, where applicable, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.
- b) For each element of the transmission facilities as identified above, the submittal package to the CPM shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on worst case conditions and a statement by the registered engineer in responsible charge (signed and sealed) that the transmission element(s) will conform with CPUC General Order 95, Title 8, CCR, Articles 35, 36 and 37 of the, High Voltage Electric Safety Orders, the NEC, PG&E Interconnection Handbook, CPUC Rule 21 and related industry standards.
- c) Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements a) through h) above. The Detailed Facilities Study and GSFA shall concurrently be provided. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CPM approval.
- d) A signed letter from the CDWR indicating that they have been consulted and that any impacts to their facilities have been adequately mitigated.

TSE-2 The project owner shall inform the CPM of any impending changes, which may not conform to the requirements 1a through 1i of TSE-1, and have not received CPM approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment, transmission facilities or switchyard configurations shall not begin without prior written approval of the changes by the CPM.

Verification: At least 60 days prior to construction of transmission

facilities, the project owner shall inform the CPM of any impending changes which may not conform to requirements of TSE-1 and request approval to implement such changes.

TSE-3 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction and any subsequent CPM approved changes thereto, to ensure conformance with CPUC General Order 95, Title 8, CCR, Articles 35, 36 and 37 of the, High Voltage Electric Safety Orders, the NEC, PG&E Interconnection Handbook, CPUC Rule 21 and related industry standards. In case of non-conformance, the project owner shall inform the CPM in writing within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM:

- a) As built engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC General Order 95, Title 8, CCR, Articles 35, 36 and 37 of the, High Voltage Electric Safety Orders, the NEC, PG&E Interconnection Handbook, CPUC Rule 21 and related industry standards, and these conditions shall be concurrently provided.
- b) An as built engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge.
- c) A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in responsible charge.

E. TRANSMISSION LINE SAFETY AND NUISANCE

Applicant will construct a 19 miles long transmission line as part of the Midway Sunset Power Project. This single-circuit, overhead, 230 kV line will originate from the project switchyard and terminate at PG&E's Midway Substation near Buttonwillow. (Ex. 15, p. 103.) The entire 19-mile route will run within Applicant's 230 kV—line corridor established with respect to its existing 225 MW facility.²⁹ (Ex. 15, p. 109.)

The route passes within 0.6 miles east of McKittrick and within 0.5 miles to the south of the town of Buttonwillow. (Exs. 15, p. 109; 1, p. 5.9-15 & 6.9-16.) The nearest residences along the route are located within 0.25 miles from the line; There are 14 such residences. (*Ibid.*) No residential developments are proposed for the area within one half mile from the route. (*Ibid.*)

Transmission lines have the potential to cause both safety hazards and nuisance impacts. Therefore, Applicant's proposed line was evaluated to ascertain whether it would:

- create aviation safety hazards or interfered with radio frequency communication;
- result in audible noise, fire hazards, nuisance shocks; or an undesirable level of exposure to electric and magnetic fields. (Ex. 15, p. 103.)

²⁹ Such use of existing line corridors (to locate new ones) is in keeping with state policy on the routing of transmission lines; the CEC facilitated compliance by requiring the applicant on June 22, 1988 to obtain an adequate right-of-way to accommodate both the existing line for their cogeneration project, and the one for a future project such as the proposed project. (Ex. 15, p. 109.)

SUMMARY OF THE EVIDENCE

Safety Hazards

The transmission line may pose a hazard to aviation, cause fires, and create electric and magnetic field exposures. Compliance with prescribed laws, ordinances, regulations, and standards (LORS), however, will reduce these potential hazards to acceptable levels.

The evidence shows that there are no major aviation centers near the proposed facility. (Exs. 15, p. 110; 1, p. 4-1.) The nearest airport with regularly scheduled commercial flights is in Bakersfield, approximately 45 miles to the northeast (Ex. 15, p. 110.) The Taft Airport is approximately 14 miles to the southeast (Exs. 15, p. 110; 1, p. 4.1.). An Federal Aviation Administration (FAA) Notice of Construction or Alteration will not be required for the proposed power line, according to existing regulatory criteria.³⁰ (Ex. 15, p. 110.)

The line's minimum ground clearance of 30 feet should be adequate for the safe operation of any aircraft involved in agricultural operations. (Exs. 15, p. 110; 1, pp. 3.6-3 & 4.2-1.) Accordingly, From its consideration of all issues related to distance from the line and FAA safety requirements, Staff and Applicant agree that the proposed line will not pose a significant hazard to area aviation. (Ex. 15, p. 110.)

Fire hazards could result from sparks from the conductors or from direct contact between the line and nearby trees. (Ex. 15, p. 111.) However, compliance with the requirements of California Public Utilities Commission General Order 95 will prevent the accumulation of combustible material in the transmission line right-of-way and thus reduce these potential impacts. (Ex. 15, p. 111; see Condition

³⁰ Applicant will, however (as is general practice with all transmission lines), file the notice with the FAA. (Ex. 15, p. 110.)

TLSN-4.) Similarly, hazardous shocks will be reduced by observing applicable standards developed to prevent direct or indirect contact with an energized transmission line. (Ex. 15, p. 111; see Condition **TLSN-1.**)

Electric and magnetic fields (EMF) occur whenever electricity is produced. (Ex. 15, pp. 107; 111-12.) Although available scientific evidence does not indicate that EMF exposure causes a significant hazard to humans, the topic has become a matter of increased concern in recent years to those living near high voltage lines. (Ex. 15, p. 107.) Electric field strengths are specified in units of kilovolts per meter (kV/m), and magnetic field strengths in milligauss (mG). (Ex. 15, pp. 111-12.

Here, field strength values were calculated from the switchyard for the proposed Midway Sunset transmission line to the Midway Substation.³¹ (Exs. 15, pp. 111-12.) The calculated electric field intensity within the right-of-way was 3.23 kV/m will vary from 21.1mG to 93.7mG. (*Ibid.*) Calculated electric field intensity at both left and right edges of the right-of-way were within normal background levels of 1.0 kV/m or less. (*Ibid.* Likewise, magnetic field levels are within the levels expected for lines of similar voltage-carrying capacity within the PG&E service area. (Ex. 15, p. 112-13; see *also* Condition **TLSN-3.**)

Nuisance Impacts

The transmission line may also interfere with radio frequency communication or cause audible noise or nuisance shocks. (Ex. 15, pp. 104-05, 111.) Design measures will limit the potential for radio frequency interference, or background

³¹ The electric field intensity was calculated for the point of maximum field strength within the 200-foot right of way and for each edge to reflect the contribution of the proposed and other area lines to background levels outside the right-of-way. (Exs. 15, p. 111; 1, pp. 3.6-5-3.6-8; 5.16-11.)

noise,³² the potential for hazardous or nuisance shocks will be minimized by construction in accordance with applicable LORS. (*Ibid.*) Staff does not expect these lines to pose any such hazards to humans and has, provided conditions of certification to ensure compliance. (Ex. 15, p. 111; see *also* Conditions **TLSN-1 & 4.**) .

Adverse cumulative effects are not present since any such exposures are within levels normally associated with lines within the PG&E transmission.³³ (Ex. 15, p. 113.) Finally, the Conditions of Certification ensure that appropriate design, operation, and mitigation measures relating to potential safety hazards and nuisance impacts will be implemented. (*Ibid.*)

FINDINGS AND CONCLUSION

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The proposed transmission line to be constructed in conjunction with the Midway Sunset Power Project is not likely to create fire hazards nor to cause safety hazards to aviation.
2. The electric and magnetic field strengths created by the project's transmission lines will be within acceptable limits, and will not create significant adverse human health impacts.
3. The project's transmission lines will not cause an unacceptable interference with radio frequency communications, nor create significant shock hazards to humans.
4. Audible noise from the proposed transmission lines will be within acceptable limits.

³² For an assessment of the noise from all phases of the proposed project, refer to the **Noise** section, *infra*.

³³ Since the strengths of electric and magnetic fields from the proposed and similar lines are calculated to factor the interactive effects of fields from nearby lines, the values calculated for the proposed line reflect any cumulative exposures along the route. (Ex. 15, p. 113.)

5. The Conditions of Certification below will ensure that the transmission lines are designed, constructed, and operated in compliance with the applicable laws, ordinances, regulations, and standards specified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the transmission lines associated with this project will not create any significant safety or nuisance hazards.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission line according to the requirements of CPUC's GO-95, GO-52, Title 8, Section 2700 et seq. of the California Code of Regulations and PG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013.

Verification: Thirty days before the start of T-Line construction, the project owner shall submit to the Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the line will be constructed according to the requirements GO-95, GO 52, Title 8, Section 2700 et seq. of the California Code of Regulations and PG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013.

TLSN-2 The project owner shall ensure that every reasonable effort will be made to identify and correct, on a case-specific basis, any complaints of interference with radio or television signals from operation of the project-related lines and associated switchyards.

The project owner shall maintain written records for a period of five years, of all complaints of radio or television interference attributable to operation together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action or for which there was no resolution should be noted and explained. The record shall be signed by the project owner and also the complainant, if possible, to indicate concurrence with the corrective action or agreement, with the justification for a lack of action.

Verification: All reports of line-related complaints shall be summarized for the project-related lines and included during the first five years of plant operation in the Annual Compliance Report.

TLSN-3 The project owner shall engage a qualified consultant to measure the strengths of the line electric and magnetic fields from the line before and after they are energized. Measurements should be made at representative points along the edge of the right-of-way for which field strength estimates were provided.

Verification: The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after completion of the measurements.

TLSN-4 The project owner shall ensure that the right-of-way of the project-related lines are kept free of combustible material, as required under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.

Verification: During the first five years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report.

TLSN-5 The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related lines are grounded according to industry standards regardless of ownership.

In the event of a refusal by any property owner to permit such grounding, the project owner shall so notify the CPM. Such notification shall include, when possible, the owner's written objection. Upon receipt of such notice, the CPM may waive the requirement for grounding the object involved.

Verification: At least 30 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

VI. PUBLIC HEALTH and SAFETY ASSESSMENT

Construction and operation of the Midway Sunset Power Project will create air pollutants and utilize certain hazardous materials that could expose the public and workers at the facility to potential adverse health effects. The following sections describe the regulatory programs, standards, protocols, and analyses that address these concerns.

A. AIR QUALITY

The Commission must find that the project complies with all applicable LORS related to air quality. This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation.

National ambient air quality standards (NAAQS) have been established for six air contaminants identified as criteria air pollutants. These include sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), lead (Pb), and particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}) and their precursors; nitrogen oxides (NO_x), volatile organic compounds (VOC), and SO_x. (Ex. 15, p. 17.) California's ambient air quality standards (CAAQS) for these pollutants are generally more stringent than the national standards. (Ex. 1, p. 5.2-11.)

The federal Clean Air Act³⁴ requires new major stationary sources of air pollution to comply with federal New Source Review (NSR) requirements in order to obtain permits to operate. (Ex. 15, p. 17.) The U.S. Environmental Protection Agency (EPA), which administers the Clean Air Act, has designated all areas of the United States as attainment (air quality better than the NAAQS) or

³⁴ Title 42, U.S.C.,/7401 et seq.

non—attainment (worse than the NAAQS) for criteria air pollutants. (Ex. 15, p. 22; see **AIR QUALITY Table 1** below.)

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O ₃)	1 Hour	0.12 ppm (235 g/m ³)	0.9 ppm (180 g/m ³)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
	1 Hour	35 ppm (40 mg/m ³)	20 ppm (23 mg/m ³)
Nitrogen Dioxide (NO ₂)	Annual Average	0.053 ppm (100 g/m ³)	—
	1 Hour	—	0.25 ppm (470 g/m ³)
Sulfur Dioxide (SO ₂)	Annual Average	80 g/m ³ (0.03 ppm)	—
	24 Hour	365 g/m ³ (0.14 ppm)	0.04 ppm (105 g/m ³)
	3 hour	1300 g/m ³ (0.5 ppm)	—
	1 Hour	—	0.25 ppm (655 g/m ³)
Respirable Particulate Matter (PM ₁₀)	Annual Geometric Mean	—	30 g/m ³
	24 Hour	150 g/m ³	50 g/m ³
	Annual Arithmetic Mean	50 g/m ³	—
Sulfates (SO ₄)	24 Hour	—	25 g/m ³
Lead	30 Day Average	—	1.5 g/m ³
	Calendar Quarter	1.5 g/m ³	—
Hydrogen Sulfide (H ₂ S)	1 Hour	—	0.03 ppm (42 g/m ³)
Vinyl Chloride (chloroethene)	24 Hour	—	0.010 ppm (26 g/m ³)
Visibility Reducing Particulates	1 Observation	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: (Ex. 15, p. 23.)

The project site is located within the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD or Air District), which is designated:

- Non—attainment for both the state and federal ozone and PM₁₀ standards and
- attainment for all other criteria pollutants.³⁵ (Ex. 15, p. 23.)

SUMMARY OF THE EVIDENCE

The 500 MW Midway Sunset Power Project will consist of:

- a 1.8 mile long, 16-inch diameter water supply line following Applicant's existing right of ways from the West Kern Water District's pumping station to the project site;
- a wastewater pipeline; and
- a 19 mile long, single circuit, 230 kV transmission line, following Applicant's existing right of ways from the project site to PG&E's Midway Substation near Buttonwillow, California. (Ex. 15, pp. 29-30.)

The construction of facilities will generate air emissions, primarily fugitive dust from earth moving activities, and combustion emissions generated from the construction equipment and vehicles. (Ex. 15, p. 29.) The projected highest daily emissions, based on the highest (peak) monthly emissions over the 20-

³⁵ When not enough ambient data is available to support designation as either attainment or nonattainment, the area may be designated as unclassified. (Ex. 15, p. 23.) Unclassified areas, here the federal CO and NO₂ standards, are normally treated as attainment areas for regulatory purposes. (*Ibid.*)

month construction activity are demonstrated below. (See **AIR QUALITY Table 2.**)³⁶

³⁶ According to Staff, **AIR QUALITY Table 2** represents estimated aggregated, peak emissions for the linear facilities. (Ex. 15, pp. 30.) Peak emissions will not occur over the entire construction period of the project; however, Staff estimates that peak emissions for the project site likely will coincide with the peak emissions of the linear facilities. (*Ibid.*)

AIR QUALITY Table 2
Maximum Daily Construction Emissions (lb/day)

	NOx	VOC	CO	Sox	PM10	Fugitive PM10
Project Site ^a	285.2	41.6	266.1	28.3	31.2	396.0 ^c
All Linear Facilities ^b	216.0	20.8	68.8	20.0	19.2	4.0 ^d
Total	501.2	62.4	334.9	48.3	50.4	400.0
<p>Notes: All activities based on an 8 hour workday, 20 days per month.</p> <p>^a Includes the combustion turbines, cooling towers, associate buildings and services, and employee vehicle emissions.</p> <p>^b Includes the water supply pipeline, waste water pipeline and 230 kV transmission line.</p> <p>^c Assuming the disturbed earth is 11 acres and 1.2 ton PM/month/acre, 60% of which is PM10, 50% of which will be controlled by watering.</p> <p>^d Assuming the total disturbed earth is 0.11 acres for all linear facilities and 1.2 ton PM/month/acre, 60% of which is PM10, 50% of which will be controlled by watering.</p>						

Source: (Ex. 15, p. 29.)

The EPA, the Air District, and CARB worked together with the Applicant and Commission staff to:

- determine whether project emissions of criteria pollutants would cause significant air quality impacts;
- identify appropriate mitigation measures that would reduce potential impacts to levels of insignificance. (Ex. 1,/5.2)

The Air District s Final Determination of Compliance (FDOC) concludes that the project will comply with all applicable air quality requirements and imposes certain conditions necessary to ensure compliance.³⁷ (Ex. 17)

1. California Environmental Quality Act (CEQA) Requirements

The Commission not only reviews compliance with Air District rules but also evaluates potential air quality impacts according to CEQA requirements. (See 14 Cal. Code of Regs., App. G [CEQA Guidelines, Appendix G].)

³⁷ Commission regulations specify that the conditions contained in the FDOC are incorporated into this Decision. (Cal. Code of Regs., tit. 20,/1744.5, 1752.3; see, Conditions **AQ—1** through **AQ—62**)

2. Regional Air Quality

a) Meteorology

The proposed project is proposed for the dry, western portion of Kern County. Annual rainfall in the Bakersfield area is only 5.7 inches. (Ex. 15, p. 21.) Daily maximum temperatures during the December-January months are a relatively mild 57°F, with lows averaging 38°F. (*Ibid.*) At the Maricopa weather station, a record high of 115°F and record low of 15°F were measured. (*Ibid.*) These temperatures are used in determining the maximum possible emissions from the project and the maximum emissions impacts in the air dispersion modeling analysis. (*Ibid.*)

Winds in the area are strongly influenced by the Temblor Range to the west and the marine air that enters the Central Valley through the Carquinez Strait and Altamont Pass in the Bay Area to the north. (Ex. 15, p. 21.) Winds are usually of higher speeds during the summer than in winter, when calm and stagnant atmospheric conditions can occur between storms and the influence of the marine air from the coast is significantly diminished. (*Ibid.*)

Along with the winds, another climatic factor affecting emission impacts is atmospheric stability and mixing height. (Ex. 15, p. 21.) During the summer daylight hours, there is more turbulence, more mixing, and less stability. (*Ibid.*) At these times, there is more air pollutant dispersion and thus less air quality impacts from a large emission source such as the Proposed project. (*Ibid.*) During winter months very stable atmospheric conditions can form, resulting in little mixing and generally higher air quality impacts. (*Ibid.*)

3. Ambient Air Quality

Ambient air quality data has been collected by local oil companies for a number of years. (Ex. 15, p. 23.) Demonstrated ambient air quality data from 1992

through 1995 collected at the Westside Operators Fellows site located approximately 8 miles south-southeast of the project site, is provided. (See **AIR QUALITY Table 3.**) The data shows no violations during the period of the air quality standards for NO₂, SO₂, or CO. (Ex. 15, p. 21.)

Ambient air quality data is also available from CARB's ozone monitor in Maricopa, located 16 miles south-southeast of the project site, and the Taft College PM₁₀ monitor, located 9 miles south of the project site. (Ex. 15, p. 25; see **AIR QUALITY Table 4** below.) It shows frequent violations of the state 1-hour ozone and 24-hour PM₁₀ standard between 1992 and 1997. (Ex. 15, p. 24.)

AIR QUALITY Table 3
Maximum PM₁₀, NO₂, CO and SO₂ Readings
Collected at Fellows and Maricopa

Pollutant	Averaging Time	1995	1994	1993	Most Restrictive Ambient Air Quality Standard	Air Monitoring Station
PM10	24 hours	80	85	109	50	Fellows
	Annual	24.6	25.9	31.0	30	Fellows
NO2	1 hour	97	81	81	470	Maricopa
	Annual	13.6	16.3	15.6	100	Maricopa
CO	1 hour	2440	2303	2941	23,000	Fellows
	8 hour	1869	1985	2222	10,000	Fellows
SO2	1 hour	65	94	36	655	Fellows
	3 hours	36	57	27	1300	Fellows
	24 hours	13	20	14	130	Fellows
	Annual	1.5	1.8	1.8	80	Fellows

Source: (Ex. 15, p. 24.)

AIR QUALITY Table 4
Ozone and PM₁₀ Ambient Air Quality Data

Pollutant & Location		1997	1996	1995	1994	1993
Ozone Maricopa	Maximum concentration (ppm)	.12	.12	.13	.13	.13
	# days exceed standard	24	63	85	78	85
PM ₁₀ Taft College	Maximum concentration (µg/m ³)	78	94	93	64	118
	# days exceed standard	6	12	15	6	13
	% of samples above 24-hour standard	10%	20%	25%	11%	23%
California Ozone Ambient Air Quality Standard: 0.09 ppm (1-hour average) National Ozone Ambient Air Quality Standard: 0.12 ppm (1-hour average) California PM10 Ambient Air Quality Standard: 50 µg/m ³ (24-hour average)						

Source: (Ex. 15, p. 25.)

a) Ozone

Ozone is not directly emitted from stationary or mobile sources, but is formed as the result of chemical reactions in the atmosphere between directly emitted air pollutants. (Ex. 15, p. 25.) Nitrogen oxides (NO_x) and hydrocarbons (Volatile Organic Compounds or VOCs) interact in the presence of sunlight to form ozone. (*Ibid.*)

The most recent CARB report on the contribution of various air districts to ozone violations in other districts concluded that San Joaquin Valley air basin contributes measurably to ambient ozone levels in other districts. (Ex. 15, pp. 25-26.) Moreover, other districts contribute to the ozone problems in the SJVUAPCD; thus, ozone formation is a regional problem. (*Ibid.*; see **Table 5** below for a summary of the impacts of ozone transport)

AIR QUALITY Table 5

Transport Couples for the San Joaquin Valley Air Basin

TRANSPORT COUPLE	Characterization
San Joaquin Valley to Mountain Counties	O
San Joaquin Valley to South Central Coast	S, I
San Joaquin Valley to Mojave Desert	O, I
San Joaquin Valley to Sacramento Area	S, I
San Joaquin Valley to Great Basin Valleys	O
San Joaquin Valley to North Central Coast	S
Sacramento Area to San Joaquin Valley	S, I
San Francisco Bay Area to San Joaquin Valley	O, S, I
O — Overwhelming S — Significant I — Inconsequential	

Source: (Ex. 15, p. 26.)

b) PM₁₀

PM₁₀ can be emitted directly or can form many miles downwind from the emission source if various precursor pollutants interact in the atmosphere. (Ex. 15, p. 28.) Gaseous emissions of pollutants like NO_x, SO_x, and VOC from

turbines, and ammonia from NO_x control equipment can, under certain meteorological conditions, form particulate matter known as nitrates (NO₃), sulfates (SO₄), and organics. (*Ibid.*) These are known as secondary pollutants since they are not directly emitted from a source but are formed through complex reactions in the atmosphere. (*Ibid.*)

Staff concluded that based on information from the District and from CARB:

- NO_x emissions contribute significantly to the formation of particulate nitrate in the region; and,
- ammonium nitrate is the largest contributor to PM₁₀ levels during the winter when ambient PM₁₀ levels are at their highest. (Ex. 15, p. 28.)

4. Construction Impacts

Construction will include the combustion turbines, the cooling towers and all other associated services (such as pumps, valves, pressure vessels and buildings. (Ex. 15, p. 288.) The power plant, not including linear facilities, will take approximately 20 months to construct. (*Ibid.*) Construction consists of three major areas of activity:

- civil/structural construction;
- mechanical construction, and
- electrical construction. (*Ibid.*)

Emissions largely are generated during the civil/structural activity, where work such as grading, site preparation, foundations, underground utility installation and building erection occur. (Ex. 15, p. 30.) These types of activities require the use of large earth moving equipment, which generate considerable combustion emissions themselves, along with creating fugitive dust emissions. (*Ibid.*)

The mechanical construction includes the installation of the heavy equipment, such as the combustion and steam turbines, the heat recovery steam generators, condenser, pumps, piping and valves. (Ex. 15, p. 30.) Although not a large

fugitive dust generation activity, the use of large cranes to install such equipment generates significantly more emissions than other construction equipment onsite. (*Ibid.*)

Finally, the electrical equipment installation occurs involving such items as transformers, switching gear, instrumentation and wiring. (Ex. 15, p. 30.) Emissions generation here is relatively small in comparison to the early construction activities. (*Ibid.*)

Project site activity will produce the largest level of construction emissions for the project due to earth moving and grading activities and large crane operations. (Ex. 15, p. 30.) Maximum fugitive-dust emissions are expected to occur during the first three months of construction. (*Ibid.*) Applicant estimates a disturbance of approximately 11 acres of earth (an average of 3.7 acres per month).³⁸

The primary emission sources during construction will be diesel exhaust from heavy equipment and fugitive dust from disturbed areas at the site. (Ex. 1, p. 5.2—28). Applicant's modeling results indicate that maximum concentration of construction—related emissions (PM₀, CO, and NO_x) will occur at the property boundary. (*Ibid.*) Under worst—case conditions these emissions would cause violations of the one—hour NQ standard and the 24—hour and annual PM₀ standards. However, Staff has proposed mitigation measures, including fugitive dust control and installation of soot filters. (See Conditions **AQ—C1** through **AQ—C3**)

Linear facilities include the wastewater pipeline, the water pipeline and the 230 kV transmission line. (Ex. 15, p. 30; see Table 2 & note 3.) Applicant proposes

³⁸ Applicant assumed that (1) 1.2 tons of fugitive dust is generated for each acre of earth disturbed per month; (2) sixty percent of that dust is PM₁₀; and (3) 50% of that PM₁₀ is controlled through watering the construction site. (Ex. 15, p. 230.) From these assumptions, the estimated maximum expected PM₁₀ emission from fugitive dust at the project site would be 396 lbs/day over a 3-month period. (*Ibid.*)

to perform construction of all linear facilities along existing right of ways. (Ex. 15, p. 30.) These right of ways have maintenance roads already in place, therefore construction related emissions for the linear facilities are expected to be minimal. (*Ibid.*)

Staff performed an air dispersion modeling analysis to evaluate the project's potential impacts on the existing ambient air pollutant levels, during both construction and operation. (Ex. 15, p. 38.) An air dispersion modeling analysis usually starts with a conservative screening level analysis. (*Ibid.*) Screening models use very conservative assumptions, such as the meteorological conditions, which may or may not actually occur in the area. The impacts calculated by screening models, therefore, can be more than the actual or expected impacts. If the screening level impacts are significant, refined modeling analysis is performed. A major difference in the refined modeling is that hour-by-hour meteorological data collected in the vicinity of the project site is used. The Industrial Source Complex Short-Term model, Version 3, known as the ISCST3 model, was used for the refined modeling. (*Ibid.*)

In addition, Applicant performed air dispersion modeling analyses of the potential construction impacts at the project site. (Ex. 15, p. 38.) The analyses included fugitive dust generated from the construction activity and combustion emissions from the equipment. (*Ibid.*) The emissions used in the analysis were the highest emissions of a particular pollutant during a one-month period, converted to a gram-per-second emission rate for the model. Most of the highest emissions occurred during the 11th month of the 20-month construction period. (*Ibid.*)

Most of the construction emissions associated with combustion sources will occur from the 1st through 15th month. (Ex. 15, p. 38.) On average, the estimated hourly emissions for these months will be approximately 82 percent of the 11th month peak. Additionally, the estimated hourly emission rates assume that all equipment slated to operate that month operate each day of the month,

which is not the case. This assumption is made so that the worst possible impact can be determined, however, actual impacts are very likely to be far less than the modeled impacts. (*Ibid.*) The results of this modeling effort are shown below in **AIR QUALITY Table 6**.

Table 6 demonstrates that the construction activities would cause a violation of the state 1-hour average NO₂ standard and further exacerbate existing violations of the state 24-hour average PM₁₀ standard. In reviewing the modeling output files, the project's construction impacts are not occasional or isolated events, but are over an area within a few hundred meters of the project site.

AIR QUALITY Table 6
Maximum Construction Impacts

Pollutant	Averaging Time	Impact (µg/m ³)	Background (µg/m ³)	Total Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂	1-hour	632	97	729	470	155
	Annual	57	16.6	74	100	74
CO	1-hour	1698	2941	4639	23,000	20
	8-hour	463	2222	2685	10,000	27
SO ₂	1-hour	370	104	474	655	72
	3-hour	191	53	244	1,300	19
	24-hour	27.7	17	44.7	130	34
	Annual	7.6	1.8	9.4	80	12
PM ₁₀	24-hour	55.8	109	164.8	50	330
	Annual	20.3	31.7	52	30	173

Source: (Ex. 15, p. 39.)

Although construction of the proposed project will result in unavoidable short-term impacts, it is doubtful that the general public would be exposed to the construction impacts associated with the project. (Ex. 15, p. 39.) This is because of the project's rather isolated location away from any population

centers in a heavily industrial area (the surrounding oilfields), where the impacts would actually occur. (Ex. 15, p. 39.)

We conclude that the impact from the construction of the project could have a significant and unavoidable impact on the NO₂ and PM₁₀ ambient air quality standards, and that this Decision provides for those impacts to be avoided or mitigated, to the extent feasible.

5. Operation Impacts

The major components of the proposed project consist of the following:

- two combustion turbine generators (CTG), using either the General Electric Frame 7F or the Westinghouse 501F, both nominally rated at approximately 170 MW. Each of the CTGs would be equipped with evaporative inlet air coolers;
- Two natural gas fired heat recovery steam generators (HRSG) and ancillary equipment;
- One steam turbine, rated at 170 MW;
- One seven-cell cooling tower; and
- One diesel fuel fired water pump. (Ex. 15, p. 31.)

The CTGs will burn only natural gas, and there are no provisions for an alternative back-up fuel. (*Ibid.*) The exclusive use of an inherently clean fuel, natural gas, will limit the formation of SO₂ and PM₁₀ emissions. (Ex. 15, p. 32.) Natural gas contains very small amounts of a sulfur compound known as mercaptan, which when combusted, results in sulfur dioxide emissions in the flue gas. (*Ibid.*) However, in comparison to other fuels used in power plants, such as fuel oil or coal, the sulfur dioxide emissions from the combustion of natural gas are very low. (*Ibid.*)

The proposed project will have several different operating modes to respond to the changing power market; start-up, shutdown, base load (with and without duct firing) and turndown (or part load). (Ex. 15, p. 31.) Applicant is requesting that

the project be analyzed considering two possible general operating scenarios. (*Ibid.*)

Operating scenario one would assume that the facility would be operated as a baseload unit. (Ex. 15, p. 31.) Applicant assumes that the facility will be 95 percent dispatchable and would need 15 startups (coupled with 15 shutdowns) per year per turbine. (*Ibid.*) Operating scenario two would assume that the facility would be operated as a peaking or load-following unit. (*Ibid.*) Here, Applicant assumes that the facility would be 80 percent dispatchable and would have no more than 150 startups (coupled with 150 shutdowns) per year per turbine. (*Ibid.*)

There are several different start-ups for a gas turbine, depending on length of time that the turbine has been shutdown and the temperatures and pressures on the steam turbine side of the power generation block. (Ex. 15, p. 31.) The usual practice is to define start-ups as either a hot start, a warm start or a cold start, with the start-up period being defined as the length of time until the gas turbine is fully loaded (i.e., producing baseload electrical power). (*Ibid.*)

A hot start would occur after an overnight turbine shutdown, typically eight-hours in length. (Ex. 15, p. 31.) The duration of a hot start is relatively short, approximately 90 minutes. (*Ibid.*) A warm start-up typically follows a two-day shut down and is approximately 150 minutes in duration to allow the steam turbine to be ramped up. (*Ibid.*) A cold start takes considerably longer, on the order of four hours and typically follows a three-day or longer shutdown.³⁹ (*Ibid.*) MSCC has defined startup periods for the cold starts as lasting no more than four-hours each, the warm starts no more than 2_ hours and the hot starts no more than 1_ hours.

³⁹ This type of start-up would be very rare, occurring only after the turbines have been under extended shutdown, such as the annual maintenance inspection that the manufacturer may require. (Ex. 15, p. 31.)

Applicant is requesting that the number of startups per year per turbine for each operating scenario be broken down as follows:

- Scenario One having 15 startups per year per turbine, 2 are cold starts, 10 are warm starts and 3 are hot starts; and
- Scenario Two having 150 startups per year per turbine, 10 are cold starts, 130 are warm starts and 10 are hot starts.⁴⁰ (Ex. 15, p. 32; see **AIR QUALITY TABLES 7 & 8** below.)

⁴⁰ The diesel-fired emergency firewater pump would be tested once a month. (Ex. 15, p. 32.)

Table 7-Scenario 1-Project Annual Emissions (tons per year [ton/yr])

		NOx	SOx	PM ₁₀	VOC	CO
WESTINGHOUSE 501F						
Cold Starts	2 /yr	0.7	0.01	0.05	0.40	3.65
Warm Starts	10 /yr	1.75	0.03	0.17	1.30	11.15
Hot Starts	3 /yr	0.36	0.00	0.03	0.36	2.91
Duct burner	1200 hrs/yr	0.53	0.11	0.53	0.72	5.22
Full Load	8322 hrs/yr	137.31	30.38	76.31	27.46	201.81
IC Engine	200 hrs/yr	0.69	0.01	0.01	0.02	0.16
Total	8359.5 hrs/yr	141.34	31.94	77.10	30.26	224.90
Down time	400.5 hrs/yr	Or 16.7 days				
GENERAL ELECTRIC FRAME 7FA						
Cold Starts	2 /yr	1.00	0.01	0.03	0.80	1.60
Warm Starts	10 /yr	1.70	0.02	0.18	1.40	3.60
Hot Starts	3 /yr	0.15	0.00	0.11	0.26	0.53
Duct burner	1200 hrs/yr	0.53	0.11	0.53	0.72	5.22
Full Load	8322 hrs/yr	129.82	30.38	76.31	21.64	149.80
IC Engine	200 hrs/yr	0.69	0.01	0.01	0.02	0.16
Total	8339.5 hrs/yr	133.89	31.94	77.17	24.83	160.91
Down time	420.5 hrs/yr	Or 17.5 days				

Full load includes the operation of the cooling tower.

Source: (Ex. 15, p. 35.)

Table 8-Scenario 2-Project Annual Emissions (tons per year [ton/yr])

		NOx	SOx	PM ₁₀	VOC	CO
WESTINGHOUSE 501F						
Cold Starts	10 /yr	3.50	0.04	0.27	2.00	18.25
Warm Starts	130 /yr	22.75	0.34	2.16	16.90	144.95
Hot Starts	10 /yr	1.20	0.02	0.10	1.20	9.70
Duct burner	1200 hrs/yr	0.53	0.11	0.53	0.72	5.22
Full Load	7008 hrs/yr	115.63	25.58	64.26	23.13	169.94
IC Engine	200 hrs/yr	0.69	0.01	0.01	0.02	0.16
Total	7388 hrs/yr	144.30	27.51	67.33	43.96	348.23
Down time	1372 hrs/yr	Or 57.2 days				
GENERAL ELECTRIC FRAME 7FA						
Cold Starts	10 /yr	5.00	0.06	0.54	4.00	8.00
Warm Starts	130 /yr	22.10	0.27	2.34	18.20	46.80
Hot Starts	10 /yr	0.50	0.01	0.09	0.85	1.75
Duct burner	1200 hrs/yr	0.53	0.11	0.53	0.72	5.22
Full Load	7008 hrs/yr	109.32	25.58	64.26	18.22	126.14
IC Engine	200 hrs/yr	0.69	0.01	0.01	0.02	0.16
Total	7173 hrs/yr	138.15	27.45	67.77	42.01	188.08
Down time	1587 hrs/yr	Or 66.2 days				

Full load includes duct firing and the operation of the cooling tower.

Source: (Ex. 15, p. 35.)

**Table 9-Project Annual Emissions
(tons per year [ton/yr])**

	Westinghouse 501F		General Electric Frame 7FA		
	Worst Case	Full Load Year Round	Worst Case	Full Load Year Round	Proposed Operating Scenario
Nox	144.30	145.76	138.15	137.88	2
Sox	31.94	33.50	31.94	33.50	1
PM10	77.10	80.87	77.17	80.87	1
VOC	43.96	29.64	42.01	23.51	2
CO	348.23	217.81	188.08	163.06	2

Full Load Year Round includes 2 turbines, duct firing, cooling tower and 200 hours of IC diesel engine operation.

Source: (Ex. 15, p. 37.)

For comparison, Staff has presented the highest emissions from each scenario for each pollutant to that of both turbines operating non-stop throughout the year. (Ex. 15, p. 36.) The highest annual emissions of SO₂ would occur with this scenario, since these emissions are a function of the quantity of fuel burned. (*Ibid.*) The annual emissions of NO_x would normally be higher with the inclusion of the start-up emissions, however in this case Applicant is taking into consideration the down time of the turbine. Therefore, the highest NO_x emissions occur if the facility runs for the entire year. (*Ibid.*)

For PM₁₀, emissions are normally identical in both cases because the standard assumption is that PM₁₀ emissions during start-up are the same as those during normal operation. (Ex. 15, p. 36.) However, in this case PM₁₀ is higher for the facility running the entire year because Applicant is accounting the facility down time. VOC is a fuel based emission (i.e., the more fuel burned the more emissions created) so normally the maximum VOC emission is a result of the facility running the entire year. Again, Applicant is assuming that the oxidation catalyst will not be effective during the startup process. (*Ibid.*) This is a very conservative assumption and artificially inflates the expected VOC emissions during startup so that they appear higher than if the facility operated year round. (*Ibid.*) CO emissions are typically higher when startups are considered, and

although Applicant is considering down time for the facility, they are still higher for the proposed operating scenarios. (Ex. 15, p. 36.)

Like SO₂, the emissions of PM₁₀ from natural gas combustion are very low compared to the combustion of fuel oil or coal. (Ex. 15, p. 32.) Natural gas contains very little noncombustible gas or solid residue; therefore, it is a relatively clean-burning fuel. (*Ibid.*) A sulfur content of 0.75 grains of sulfur per 100 standard cubic feet of natural gas was assumed for the SO₂ emission calculations. (*Ibid.*)

To minimize NO_x, CO and VOC emissions during the combustion process, the CTG is equipped with the latest dry low-NO_x combustor design developed by GE. (Ex. 15, p. 32.) After combustion, the flue gases pass through the natural gas fired heat recovery steam generator (HRSG), where catalyst systems are placed to further reduce NO_x, CO and VOC emissions. (*Ibid.*) Applicant is proposing to use a Selective Catalytic Reduction (SCR) system to reduce NO_x emissions. (*Ibid.*) An oxidizing catalyst, will also be installed in the HRSG to reduce CO and VOC emissions. (*Ibid.*)

Startup emissions are difficult to estimate for any post-combustion controlled gas turbine. (Ex. 15, p. 32.) First and foremost, startup is a volatile unsteady action. (*Ibid.*) Fuel and air ratios and injection rates are changing throughout the process, as well as exhaust temperatures and flow rates. Second, the post-combustion controls are temperature dependent. (*Ibid.*) The SCR and oxidizing catalyst do not become effective until the exhaust gases reach approximately 500 °F, which is 20 minutes after the turbine starts up. Applicant's estimates for startup emissions are as shown below in **AIR QUALITY Table 10**.

Table 10-Project Startup Emissions Estimates^a(lbs/event)

	Duration (minutes)	NOx	Sox	PM ₁₀	VOC	CO
WESTINGHOUSE 501F						
Cold Start	240	700	8.4	53.2	400	3,650
Warm Start	150	350	5.3	33.3	150	2,230
Hot Start	90	240	3.2	20	90	1,940
GENERAL ELECTRIC FRAME 7FA						
Cold Start	180	1000	12.6	108	800	1600
Warm Start	60	340	4.2	36	280	720
Hot Start	30	100	2.2	18	170	350

^a All emissions include both gas turbines.

Source: (Ex. 15, p. 33.)

Applicant's projections criteria for air pollutant emissions during short periods of time, one hour or less are shown in **AIR QUALITY Table 11**.

Table 11-Project Hourly Emissions-(lbs/hr)

Operational Profile	NOx	SO ₂	PM ₁₀	VOC	CO
Westinghouse 501F (19°F, baseload) ^a	17.7	3.9	9.0	3.6	25.9
General Electric Frame 7FA (19°F, baseload) ^a	16.7	3.67	9.0	2.8	23.7
Duct burners ^a	0.44	0.09	0.44	0.60	4.35
Cooling Towers ^a	--	--	0.34	--	--
Emergency Fire-water Pump ^a	6.9	0.14	0.12	0.2	1.6
2 CTGs at peak load + duct firing + Cooling Tower + Emergency Firewater Pump					
Westinghouse 501F	36.28	7.98	19.56	8.40	60.50
General Electric Frame 7FA	34.28	7.52	19.56	6.80	47.30

^a Per emission unit

Source: (Ex. 15, p. 33.)

Comparing **Tables 10 and 11** demonstrates that the highest emissions are from the combustion turbine during startup for NOx, CO and VOC. (Ex. 15, p. 33.) However, the emissions for PM₁₀ and SOx are fuel based emissions estimates (i.e., they are based on the amount of fuel burned), therefore these emissions are higher when the turbines are at full load. (*Ibid.*)

The daily emissions from the project are shown below in **AIR QUALITY Table 12.**

Table 12-Gas Turbine Daily Emissions (lbs/day)

Operational Profile	NOx	SO2	PM10	VOC	CO
Westinghouse 501F					
Cold Start + 20 hrs of Full Load Operation	1,432.54	182.20	444.52	568.17	4,861.64
Warm Start + 21.5 hrs of Full Load Operation	1,136.96	191.07	453.96	440.77	3,532.39
Hot Start + 22.5 hrs of Full Load Operation	1,063.24	196.95	460.22	429.17	3,302.89
24 hrs of Full Load Operation	877.66	205.72	469.56	201.77	1,453.64
GENERAL ELECTRIC FRAME 7FA					
Cold Start + 21 hrs of Full Load Operation	1,726.82	184.72	518.88	942.97	2,594.94
Warm Start + 23 hrs of Full Load Operation	1,135.38	191.36	486.00	436.57	1,809.54
Hot Start + 23.5 hrs of Full Load Operation	912.52	193.12	477.78	329.97	1,463.19
24 hrs of Full Load Operation	829.66	194.68	469.56	136.37	1,136.84

All instances of full load operation include the cooling tower, duct firing and 1-hour operation of the emergency IC engine.

Source: (Ex. 15, p. 34.)

The air quality impacts of project operation are shown below for fumigation meteorological conditions, and during combustion turbine start-up and steady-state operations. We deal first with fumigation.

During the early morning hours before sunrise, the air is usually very stable. (Ex. 15, p. 39.) During such stable meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed. (*Ibid.*) When the sun first rises, the air at ground level is heated, resulting in a vertical (both rising and sinking air) mixing of air for a few hundred feet or so. Emissions from a stack that enter this vertically mixed layer of air will also be vertically mixed, bringing some of those emissions down to ground level. (Ex. 15, p. 39,40.) Later in the day, as the sun continues to heat the ground, this vertical mixing layer becomes higher and higher, and the emissions plume becomes more dispersed.

(Ex. 15, p. 40.) The early morning air pollution event, called fumigation, usually lasts approximately 30 to 90 minutes. (*Ibid.*)

The applicant used the **SCREEN 3** model, which is an EPA approved model, for the calculation of fumigation impacts. (Ex. 15, p. 40.) **AIR QUALITY Table 13** shows the modeled fumigation results and impacts on the one-hour NO₂, CO and SO₂ standards. (*Ibid.*) Since fumigation impacts will not typically occur much beyond a one-hour period, only impacts on these one-hour standards were addressed. The results of the modeling analysis show that fumigation impacts at either partial load (50 percent) or full load will not violate the NO₂, CO or SO₂ one-hour standards.

AIR QUALITY Table 13
CTG Fumigation Modeling Maximum 1-Hour Impacts

Pollutant	Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	Limiting Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NO ₂	8.07	97	105.1	470	22
CO	53.98	2941	2995	23,000	13
SO ₂	1.16	104	105	655	16
Notes: Impacts reflect the highest results, turbine at 50% load, 63.9°F, no duct burners, winds at 1 m/s.					

Source: (Ex. 15, p. 408.)

Applicant provided Staff with a modeling analysis, using the ISCST3 model to quantify the potential impacts of the project for both turbines, during normal steady state operation and during start-up conditions. (Ex. 15, p. 40.) This modeling analysis consisted of a screening-level and a refined-level analysis. The screening-level analysis tested 12 basic operating conditions, which combined various load levels and duct burner operations with several ambient air temperatures. (*Ibid.*) The refined analysis involved only NO_x and PM₁₀ modeling for normal operations for the turbine set that would cause the highest emission impact. The results of these modeling analysis are shown in **AIR QUALITY**

Table 14. Table 14 shows that during normal operation of the combustion turbines, the air pollution impacts would not cause a violation of any NO₂, CO or SO₂ ambient air quality standards. (*Ibid.*)

The project's PM₁₀ impacts could contribute to existing violations of the state 24-hour and annual average PM₁₀ standards. (Ex. 15, p. 40.) However, it should be noted that the modeling outputs show that the vast majority of 24-hour impacts are on the level of 2 µg/m³ or less. (*Ibid.*) Because of the conservatism of the air dispersion model itself, Staff believes that the actual impacts from the project would be significantly less than the projected modeled impacts shown in **AIR QUALITY Table 14**. However, if left unmitigated, staff would consider the PM₁₀ impacts significant.

AIR QUALITY Table 14
Combustion Turbine Modeling Maximum Impacts

Pollutant	Operation	Averaging Time	Impact (µg/m ³)	Back-Ground (µg/m ³)	Total Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂	1,A	1-hour	59.9	97	156.9	470	33
	1,A	Annual	0.5	16.6		100	17
CO	1	1-hour	483	2,941	3,424	23,000	15
	1	8-hour	181	2,222	2,403	10,000	24
SO ₂	2	1-hour	13.7	104	117.7	655	18
	2	3-hour	9.1	53	62.1	1300	5
	2	24-hour	2.0	17	19	130	15
	2	Annual	0.07	1.8	1.9	80	2
PM ₁₀	1, A, B	24-hour	9.2	118	127.2	50	254
	1, A, B	Annual	3.4	39.8	43.2	30	144
<p>1 Emissions modeled reflect the Westinghouse 501F Turbines operating in winter (19°F) at part load (50%) with the duct burners off.</p> <p>2 Emissions modeled reflect the General Electric Frame 7FA Turbines operating in winter (19°F) at full load (100%) with the duct burners off.</p> <p>A Indicates refined modeling of the project emissions.</p> <p>B PM₁₀ emissions include emissions from the operation of the proposed cooling towers at full load.</p>							

Source: (Ex. 15, p. 41.)

Start-up circumstances can be troublesome for significant air quality impacts for the following reasons. First, emissions (particularly of NO_x and CO) can be high and often uncontrolled, because emission control equipment is not operating at optimum temperature ranges. (Ex. 15, p. 41.) Second, low-volumetric flow rates and exhaust-gas temperatures can result in low-exhaust plume rise and consequently higher ground level impacts. (*Ibid.*)

For determining the maximum one-hour impacts, Applicant assumed that one turbine would be in start-up and one turbine would be running under full load. NO_x and CO controls were assumed to be inactive during startup. (Ex. 15, p. 41.) The modeling results, shown in **AIR QUALITY Table 15**, indicate that the highest short-term impacts on ambient NO₂ and CO levels do occur during start-up circumstances.

The modeling analysis indicates that during a project start-up scenario, the impacts from that start-up, plus background NO₂ ambient levels would result in the highest impact of the project on the 1-hour state NO₂ standard. (Ex. 15, p. 41.) This modeling analysis reflected the use of the Ozone Limiting Method (OLM) to provide a more refined estimate of NO₂ impacts. (Ex. 15, pp. 41-42.)

AIR QUALITY Table 15
Combustion Turbine Startup Modeling Impacts

Pollutant	Operation	Averaging Time	Impact (µg/m ³)	Back-Ground (µg/m ³)	Total Impact (µg/m ³)	Limiting Standard (µg/m ³)	Percent of Standard
NO ₂	1	1-hour	222.7	97	319.7	470	68
CO	1	1-hour	3,246	2,941	2941	23,000	27
	1	8-hour	1,191	2,222	3413	10,000	34
1 Emissions modeled reflect the Westinghouse 501°F Turbines during a warm startup, as indicated in AIR QUALITY Table 5.							

Source: (Ex. 15, p. 42.)

The project's emissions of gaseous emissions, primarily NO_x, SO₂ and VOC, can contribute to the formation of secondary pollutants, namely ozone and PM₁₀, particularly ammonium nitrate PM₁₀ and sulfate. (Ex. 15, p. 42.) There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. (*Ibid.*) There are no regulatory agency models approved for assessing single source ozone impacts. (*Ibid.*)

Because of the known relationship of NO_x and VOC emissions to ozone formation, however, it can be said that the emissions of NO_x and VOC from the proposed project do have the potential (if left unmitigated) to contribute to higher ozone levels in the region. (Ex. 15, p. 42.)

Concerning secondary PM₁₀ (primarily ammonium nitrate) formation, La Paloma (99-AFC-2) submitted a conclusion from a study by Sonoma Technology, Inc. which states that the San Joaquin Valley is generally ammonia rich during the winter season when ambient PM₁₀ levels are highest. (Ex. 15, p. 42.) This means that under such conditions, adding more ammonia to the ambient air will not automatically result in more ammonium nitrate formation. (*Ibid.*)

Here, Applicant quantified the highest ammonia emissions at approximately 583 pounds per day per turbine based on a permitted 10-ppm ammonia slip. (Ex. 15, p. 42.) But Staff believes that these mass emissions will be more on the order of 50 to 125 pounds per day per turbine based on a normal 1 to 2 ppm ammonia slip. (*Ibid.*) Therefore, Staff opines that the ammonia slip emission do not have the potential to cause or contribute to an exceedance of the PM₁₀ standard. (*Ibid.*)

SO_x and NO_x emissions from the proposed project could add to secondary PM₁₀ formation, since there is more than sufficient ambient ammonia

available to react and form ammonium sulfate and ammonium nitrate. (Ex. 15, p. 42.) Therefore, if the SO_x and NO_x emissions are left unmitigated they may have the potential to contribute to PM₁₀ exceedances. (*Ibid.*)

The process of gas-to-particulate conversion is complex and depends on many factors, including local humidity and the presence of other compounds. (Ex. 15, p. 43.) Currently, there are no agency (EPA or CARB) recommended models or procedures for estimating nitrate or sulfate formation. (*Ibid.*) Nevertheless, studies during the past two decades have provided data on the oxidation rates of SO₂ and NO_x. (*Ibid.*) The data from these studies can be used to approximate the conversion of SO₂ and NO_x to particulate. (*Ibid.*) This can be done by using an aggregate conversion factor (typically about 0.01 to 1 percent per hour) with Gaussian dispersion models such as ISCST3. (*Ibid.*)

The model is run with and without chemical conversion (decay factor) and the difference corresponds to the amount of SO₂ and NO₂ that is converted to particulate. (Ex. 15, p. 43.) This approach is an over simplification of a complex process; nevertheless, given the stringency of the PM₁₀ and the new PM_{2.5} standards, and the need to address interpollutant conversion rates in setting offset ratios, for interpollutant trading, Staff believes this issue needs to be addressed. (*Ibid.*)

Accordingly, Staff, as part of their cumulative modeling analysis quantified, through air dispersion modeling and assumed NO_x and SO₂ conversion rates to PM₁₀, the potential secondary PM₁₀ impacts from the three power projects in the area currently before the Commission for licensing: Western MSCC, Sunrise Cogeneration and the recently licensed La Paloma project. Staff believes that the emissions of NO_x from Western MSCC project does have the potential (if left unmitigated) to contribute, to higher secondary PM₁₀ (particularly of ammonium nitrate) levels in the region.

6. Cumulative Impacts

Applicant has performed a cumulative modeling assessment of four projects proposed for western Kern County: Midway Sunset, Elk Hills (99-AFC-1), Sunrise (98-AFC-4 and La Paloma (98-AFC-2). (Ex. 15, p. 43.) Applicant modeled all four power plants in various modes of operation, including both the Westinghouse and General Electric Turbine options. (Ex. 15, p. 43-44.) La Paloma was modeled as if it were in augmented power mode, in addition to the La Paloma auxiliary boiler being at full load. (Ex. 15, p. 44.) Sunrise was modeled in baseload mode, while Elk Hills and Midway Sunset were modeled in startup mode. The results of this modeling analysis are shown in **AIR QUALITY Table 15**.

AIR QUALITY Table 15
Maximum Cumulative Impacts

Pollutant	Averaging Time	Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	Limiting Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NO ₂	1-hour	386.1	94	480	470	102
	Annual	2.75	16.6	19.4	100	19
CO	1-hour	1833	2941	4774	23,000	21
	8-hour	657	2222	2879	10,000	29
SO ₂	24-hour	1.51	20	21.5	130	17
	Annual	0.20	1.8	2.0	80	3
PM ₁₀	24-hour	4.77	118	122.8	50	246
	Annual	0.87	31.7	32.6	30	109

Source: (Ex. 15, p. 44.)

AIR QUALITY Table 15 demonstrates the cumulative air quality effects of the four projects do not cause a new violation of any CO or SO₂ ambient air quality standards. (Ex. 15, p. 44.) The four projects would contribute to already existing violations of the state PM₁₀ ambient air quality standards. (*Ibid.*)

However, all three of these projects will be required to provide PM₁₀ emission offsets to mitigate their PM₁₀ impacts.

The four projects could also cause violations of the 1-hour NO₂ standard, however the impact indicated in Table 15 does not consider potential ozone limiting effects. (Ex. 15, p. 44.) Applicant reports that if these effects are taken into consideration, the resulting impacts will be 84 percent of the limiting ambient air quality standard. (*Ibid.*) However, there is insufficient information at this time to determine if the ozone limiting effect have been taken into consideration correctly for one or all of the power plant being considered. (*Ibid.*) Therefore, Staff opines that the cumulative analysis should reflect no ozone limiting. (*Ibid.*) Additionally, Staff opines that the proposed project s NOx emissions have the potential to cumulative contribute to an exceedance of the NO₂ standard if left unmitigated. (*Ibid.*)

Finally, a visibility analysis of the project s gaseous emissions is required under the Federal Prevention of Significant Deterioration (PSD) permitting program. (Ex. 15, p. 44.) The analysis addresses the contributions of gaseous emissions (primarily NOx) and particulate (PM₁₀) emissions to visibility impairment on the nearest Class 1 PSD areas, which are national parks and national wildlife refuges. (*Ibid.*)

The nearest Class 1 areas to the proposed project are the Domeland Wilderness Area, 90 miles to the northeast, and the San Rafael Wilderness Area 35 miles to the south. (Ex. 15, p. 44.) Applicant used the EPA approved model **VISCREEN** to assess the project s visibility impacts. (*Ibid.*) The results from the **VISCREEN** modeling analysis indicated that the project s visibility impacts would be below the significance criteria for contrast and perception. (*Ibid.*) Therefore, the project s visibility impacts on these Class 1 areas are considered insignificant.

7. Mitigation

Under EPA regulations, Best Available Control Technology (BACT) emissions limits are required for facilities that emit attainment pollutants. The Air District defines BACT as the most stringent emission limit or control technology that has been achieved in practice.²⁴ (Ex. 1,/5.2.3.)

Here, the District has limited NO_x emissions during project operation to 2.0 ppmvd (at 15% O₂) with a rolling average under steady state conditions. (Exs. 16A; Ex. 17.) The proposed project will employ Selective Catalytic Reduction (SCR) technology, which uses ammonia (NH₃) for NO_x reduction to achieve BACT. (*Ibid.*)

Applicant investigated alternative technologies, including XONONTM and SCONOXTM. These technologies were not chosen because they have not yet been demonstrated on large turbines. (Exs 1,/5.2.3.3.6; 17.)

Selective catalytic reduction refers to a process that chemically reduces NO_x by injecting ammonia into the flue gas stream over a catalyst in the presence of oxygen. The process is termed selective because the ammonia reducing agent preferentially reacts with NO_x rather than oxygen, producing inert nitrogen and water vapor. The performance and effectiveness of SCR systems are related to operating temperatures, which may vary with catalyst designs. Flue gas temperatures from a combustion turbine typically range from 950°F to 1100°F.

Catalysts generally operate between 600°F to 750°F and are normally placed inside the HRSG where the flue gas temperature has cooled. (Ex. 15, p. 46.) At temperatures lower than 600°F, the ammonia reaction rate may start to decline, resulting in increasing ammonia emissions, called ammonia slip. (*Ibid.*) At temperatures above about 800°F, depending on the type of material used in the

²⁴ For facilities that emit non—attainment pollutants, USEPA requires the Lowest Achievable Emission Rate (LAER), which is even more stringent than federal BACT. In California, however, state BACT is equivalent to federal LAER limits. (Ex. 1,/5.2.2.)

catalyst, damage to some catalysts can occur. (*Ibid.*) The catalyst material most commonly used is titanium dioxide, but materials such as vanadium pentoxide, zeolite, or a noble metal are also used. (*Ibid.*) These newer catalysts (versus the older alumina—based catalysts) are resistant to fuel sulfur fouling at temperatures below 770...F.(*Ibid.*)

Regardless of the type of catalyst used, efficient conversion of NO_x to nitrogen and water vapor requires uniform mixing of ammonia into the exhaust gas stream. (Ex. 15, p. 46.) Also, the catalyst surface has to be large enough to ensure sufficient time for the reaction to take place. (*Ibid.*) Applicant proposes to use a combination of the dry low—NO combustors, and SCR system to produce a NO_x concentration exiting the HRSG stack of 2.5 ppm, corrected to 15 percent excess oxygen averaged over a 3—hour period. (Ex. 15, p. 47).

Applicant will install an oxidation catalyst and low dry NO_x combustors with the SCR system to control CO and VOC emissions. CO emissions will be limited to 6 ppmvd (at 15% oxygen) on a three—hour average. VOCs will be less than 2 ppmvd on a 24—hour basis. (Exs. 15, p. 32; 17, p. 22). Cooling tower PM₁₀ emissions will be controlled by achieving 0.0005 percent drift eliminator efficiency. (Ex. 17, p. 27).

Emission reduction credits (ERCs or offsets) are created when existing permitted emission sources cease or reduce their operations below permitted levels. (Ex. 15, p. 47.) The ERCs are approved and banked by the Air District. (*Ibid.*) ERCs are required for NO_x, PM₁₀, SO_x, and VOC to ensure that the project will not interfere with the District's overall attainment strategy. (*Ibid.*)

Applicant will use NO_x ERCs to offset most of its PM₁₀ liability as shown below in **Table 16**. Since there are few PM₁₀ offsets available, the District is allowing interpollutant trading at a ratio of 2.22 pounds of NO_x for 1 pound of PM₁₀. Applicant has secured all the required offsets to fully mitigate this project. (Ex. 17, p. 7.5).

AIR QUALITY Table 16
Emissions Offsets Balance

	Offsets Required	Offsets provided (adjusted for distance)	Balance	NOx offsets provided for PM10	Final Balance
	Tons/year				
WESTINGHOUSE 501F					
PM ₁₀	75.76	0.00	75.76	77.24	-1.47
NO _x	143.61	315.08	-171.47		
SO ₂	30.20	30.20	0.00		
VOC	43.95	43.950	0.00		
GENERAL ELECTRIC FRAME 7FA					
PM ₁₀	75.58	0.00	75.58	77.06	-1.47
NO _x	137.45	308.52	-171.07		
SO ₂	30.55	30.55	0.00		
VOC	41.99	41.99	0.00		

Source: (Ex. 15, p. 48.)

FINDINGS AND CONCLUSTIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. National ambient air quality standards (NAAQS) and California ambient air quality standards (CAAWS) have been established for six air contaminants identified as criteria air pollutants, including sulfur dioxide (SO₂), lead (Pb), and particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}) and their precursors; nitrogen oxides (NO_x), volatile organic compounds (VOC), and SO_x.
2. The San Joaquin Valley Unified Air Pollution Control District (Air District) has jurisdiction over the area where the project site is located.
3. The Air district is a non—attainment area for both the state and federal ozone and PM₁₀ standards and attainment for all other criteria pollutants.
4. Construction and operation of the project will result in emissions of criteria pollutants and their precursors.
5. Applicant will employ the best available control technology (BACT) to limit pollutant emissions by installing SRC technology.

6. Project NO_x emissions are limited to 2.0 parts per million (ppm) corrected at 15 percent oxygen average over one hour.
7. Project ammonia slip emissions resulting from use of SCR are limited 10 ppm.
8. No adverse public health effects will result from the 10 ppm ammonia slip maximum limit.
9. Applicant has secured all the required offsets to fully mitigate the project.
10. Project emissions will not result in cumulative impacts to air quality in the project vicinity..
11. Implementation of the Conditions of Certification, below, ensures that Western MSCC will not result in any significant adverse impacts to air quality.

The Commission, therefore, concludes that with implementation of the Conditions of Certification, below, and the mitigation measures described in the evidentiary record, the Western MSCC power plant will conform with all applicable laws, ordinances, regulations, and standards relating to air quality as set forth in the pertinent portions of Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

AQ—CThe project owner shall require as a condition of its construction contracts that all contractors and subcontractors ensure that all heavy earthmoving equipment, that includes, but is not limited to bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and cranes, dump trucks and other heavy duty construction related trucks, have been properly maintained and the engines tuned to the engine manufacturer's specifications. The project owner shall further require as a condition of its construction contracts that this equipment shall employ high pressure fuel injection (common rail) system or engine timing retardation to control the emissions of oxides of nitrogen. The project owner shall further require as a condition of its construction contracts that all on—road gas powered vehicles are equipped with catalytic converters. The project owner shall further require as a condition of its construction contracts that all heavy construction equipment to the extent practical, shall remain running at idle for no more than five minutes.

Verification: The project owner shall submit to the CPM, via the Monthly Compliance Report, documentation, which demonstrates that contractor s and subcontractor s heavy earthmoving equipment is properly maintained and the engines are tuned to the manufacturer s specifications. The project owner shall maintain construction contracts on the site for six months following the start of commercial operation.

AQ—CZ The project owner shall install oxidizing soot filters on all suitable construction equipment used either on the power plant construction site or associated linear construction sites. Where the oxidizing soot filter is determined to be unsuitable, the owner shall install and use an oxidation catalyst. Suitability is to be determined by an independent California Licensed Mechanical Engineer in consultation with the California Air Resources Board (CARB) who will stamp and submit for approval an initial and all subsequent Suitability Reports as necessary containing at a minimum the following:

Initial Suitability Report:

The initial suitability report shall be submitted to the CPM for approval 60 days prior to rough grading breaking ground on the project site and will include:

- a list of all fuel burning, construction related equipment used,
- identify diesel powered construction equipment that is CARB certified under Section 2400 et seq. of Title 13 of the California Code of Regulations;
- determination of the suitability of each piece of equipment to firstly work appropriately with an oxidizing soot filter;
- determination of the suitability of each piece of equipment to secondly work appropriately with an oxidation catalyst;
- if a piece of equipment is determined to be unsuitable for an oxidizing—soot filter, an explanation will be provided by the independent California Licensed Mechanical Engineer as to the cause of this determination;
- if a piece of equipment is determined to be unsuitable for both an oxidizing—soot filter and an oxidizing catalyst, an explanation will be provide by the independent California Licensed Mechanical Engineer as to the cause of this determination.

Installation Report

- Following the installation of either the oxidizing soot filter or oxidizing catalyst as prescribed in the Initial Suitability Report, a California Licensed Mechanical Engineer will submit an Installation Report to the CPM for approval that either confirms that the installed device is functioning properly or that installation was not possible and the cause.

Subsequent Suitability Reports

If a piece of construction equipment is subsequently determined to be unsuitable for an oxidizing soot filter or oxidizing catalyst after such installation has occurred, the filter or catalyst may be removed immediately. However notification must be sent to the CPM for approval containing an explanation for the change in suitability within 10 days.

Changes in suitability are restricted to one of the following three justifications and must be identified in any subsequent suitability report. Changes in suitability may not be based on the use of high—pressure fuel injectors, timing retardation and/or reduced idle time.

1. The filter or catalyst is reducing normal availability of the construction equipment due to an excessive increased in downtime, and/or power output due to increased back pressure by 20 percent or more.
2. The filter or catalyst is causing or reasonably expected to cause significant damage to the construction equipment engine.
3. The filter or catalyst is causing or reasonably expected to cause a significant risk to nearby workers or the public.

Verification: The project owner will submit to the CPM for approval, the initial suitability report stamped by an independent California Licensed Mechanical Engineer, 60 calendar days prior to rough grading on the project site. The project owner will submit to the CPM for approval an Installation Report stamped by an independent California Licensed Mechanical Engineer no later than 10 working days following the use of the construction equipment. The project owner will submit to the CPM for approval, subsequent suitability reports as required, stamped by an independent California Licensed Mechanical Engineer no later than 10 working days following a change in the suitability status of any construction equipment. The CPM will monitor the approval of all reports submitted by the project owner in consultation with CARB limiting the review time for any one report to no more than 20 working days.

AQ—C3 Prior to breaking ground at the project site, the project owner shall prepare a Construction Fugitive Dust Mitigation Plan that will specifically identify fugitive dust mitigation measures that will be employed for the construction of the Western Midway Sunset Cogeneration Project and related facilities.

Protocol: The Construction Fugitive Dust Mitigation Plan shall specifically identify measures to limit fugitive dust emissions from construction of the project site and linear facilities. Measures that should be addressed include the following:

- the identification of the employee parking area(s) and surface of the parking area(s);
- the frequency of watering of unpaved roads and disturbed areas;
- the application of chemical dust suppressants;
- the use of gravel in high traffic areas;
- the use of paved access aprons;
- the use of posted speed limit signs;
- the use of wheel washing areas prior to large trucks leaving the project site; and,
- the methods that will be used to clean tracked—out mud and dirt from the project site onto public roads.

Verification: At least 60 days prior to breaking ground at the project site, the project owner shall provide the CPM with a copy of the Construction Fugitive Dust Mitigation Plan for approval.

SJVUAPCD Permit No. S—1135—313—0 —GE FRAME 7FA or Westinghouse 501F NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR Unit D WITH DRY LOW NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION, OXIDIATION CATALYST, AND STEAM,

SJVUAPCD Permit No. S—1135—314—0 —GE FRAME 7FA or Westinghouse 501F NATURAL GAS FIRED COMBINED CYCLE GAS TURBINE ENGINE/ELECTRICAL GENERATOR Unit E WITH DRY LOW NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION, OXIDIATION CATALYST, AND STEAM,

AQ—1 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

AQ—2 The project owner shall submit selective catalytic reduction, oxidation catalyst, and continuous emission monitor design details to the District at least 30 days prior to the construction of permanent foundations. [District Rule 2201]

Verification: The project owner shall provide copies of the drawings of the catalyst system chosen and the continuous emission monitor design detail to the CPM and the District at least 30 days prior to the construction of permanent foundations.

AQ—3 Combustion turbine generator (CTG) and electric generator lube oil vents shall be equipped with mist eliminators to maintain visible emissions from lube oil vents shall no greater than 5 percent opacity, except for three minutes in any hour. [District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—4 The CTG shall be equipped with an inlet air filter and continuously recording fuel gas flowmeter. [District Rule 2201]

Verification: The information above shall be included in the quarterly reports of Condition **AQ—35**.

AQ—5 CTG exhaust shall be equipped with continuously recording emissions monitor for NO_x (before and after the SCR unit), CO, and O₂ dedicated to this unit. Continuous emission monitors shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—6 Ammonia injection grid shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—7 Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—8 Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidizing catalyst if required to meet NO_x and CO emission limits. [District Rule 2201]

Verification: Please refer to **Condition AQ—2**

AQ—9 The project owner shall monitor and record exhaust gas temperature at the selective catalytic reduction and oxidation catalyst inlets. [District Rule 2201]

Verification: The project owner shall record the exhaust gas and selective catalytic reduction temperatures in the daily logs.

AQ—10 CTG shall be fired on natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—34**.

AQ—11 Startup is defined as the period beginning with initial turbine firing until the unit meets the lb/hr and ppmv emission limits in Condition **AQ—15**.

Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup durations shall not exceed three hours for the GE Frame 7FAs and four hours for the Westinghouse 501F. Shutdown shall not exceed one hour per occurrence. [District Rule 2201 and 4001]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—12 Ammonia shall be injected when the selective catalytic reduction system catalyst temperature exceeds 500 degrees F. The project owner shall monitor and record catalyst temperature during periods of startup. [District Rules 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—13 During startup or shutdown of any gas turbine engine(s), combined emissions from both gas turbine engines (S—1135—313 and S—1135—314) heat recovery steam generator exhausts shall not exceed any of the following limits in any one hour:

NO _x (as NO ₂)	517.7 lbs
CO	1850.9 lbs

[CEQA]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—14 By two hours after initial turbine firing, CTG exhaust emissions shall not exceed any of the following: For the GE Frame 7FA NO_x (as NO₂) 12.2 ppmv @ 15% O₂ CO 25 ppmv @ 15% O₂: For the Westinghouse 501F NO_x (as NO₂) 12.2 ppmv @ 15% O₂ and CO 200 ppmv @ 15% O₂. [District Rule 4703]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—15 Emission rates from each CTG, except during startup or shutdown, shall not exceed any of the following emission limits:

GE Frame 7FA

PM ₁₀	9.4 lbs/hr
SO ₂	3.8 lbs/hr
NO ₂	13/3 lbs/hr and 2.0 ppmvd @ 15% O ₂ averaged over 1—hr
VOC	3.2 lbs/hr and 1.4 ppmvd @ 15% O ₂ averaged over 3—hr
CO	21.7 lbs/hr and 6 ppmvd @ 15% O ₂ averaged over 3—hr

Ammonia 10 ppmvd @ 15% O₂ averaged over 24—hr
Westinghouse 501F

PM ₁₀	9.4 lbs/hr
SO ₂	3.9 lbs/hr
NO ₂	14.2 lbs/hr and 2.5 ppmvd @ 15% O ₂ averaged over 1—hr
VOC	3.8 lbs/hr and 1.5 ppmvd @ 15% O ₂ averaged over 3—hr
CO	27.2 lbs/hr and 6 ppmvd @ 15% O ₂ averaged over 3—hr
Ammonia	10 ppmvd @ 15% O ₂ averaged over 24—hr

[District Rule 2201, 4001 and 4703]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—16 Emission rates from each CTG, on days when a startup or shutdown occurs, shall not exceed any of the following:

GE Frame 7FA

PM ₁₀	226.6 lbs/day
SO ₂	90.24 lbs/day
NO ₂	780.1 lbs/day
VOC	467.2 lbs/day
CO	1,255.3 lbs/day

Westinghouse 501F

PM ₁₀	226.6 lbs/day
SO ₂	93.6 lbs/day
NO ₂	704.0 lbs/day
VOC	276.0 lbs/day
CO	2,368.0 lbs/day

[District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—17 Condition deleted.

AQ—18 Annual emissions from both CTGs calculated on a twelve consecutive month rolling basis shall not exceed any of the following:

GE Frame 7FA

PM₁₀ — 151,167 lb/year
SO_x (as SO₂) — 61,094 lb/year
NO_x (as NO₂) — 230.615 lb/year
VOC — 83,982 lb/year
CO — 375,828 lb/year

Westinghouse 501F

PM₁₀ — 151,527 lb/year
SO_x(as SO₂) — 60,404 lb/year
NO_x (as NO₂) — 240.968 lb/year
VOC — 87,893 lb/year
CO — 696,829 lb/year

[District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—19 Each one—hour period in a one—hour rolling average will commence on the hour. Each one—hour period in a three—hour rolling average will commence on the hour. The three—hour average will be compiled from the three most recent one—hour periods. Each one—hour period in a twenty—four—hour average for ammonia slip will commence on the hour. The twenty—four—hour average will be calculated starting and ending at twelve—midnight. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—20 Daily emissions will be compiled for a twenty—four period starting and ending at twelve—midnight. Each calendar month in a twelve—consecutive—month rolling emissions will commence at the beginning of the first day of the month. The twelve—consecutive—month rolling emissions total to determine compliance with annual emissions will be compiled from the twelve most recent calendar months. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—21 Prior to or upon startup of S—1135—313, 314, and 315, emission offsets shall be surrendered for all calendar quarters in the following amounts (shown below in pounds), at the offset ratio specified in Rule 2201 (6/15/95 version) Table 1.

GE Frame 7FA (pounds)

Pollutant	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Total
PM ₁₀	38,001	38,424	38,846	38,846	154,117
SO ₂	15,064	15,232	15,399	15,399	61,094
NO ₂	56.864	57.496	58.128	58.127	230.615
VOC	20,708	20,938	21,168	21,168	83,982

Westinghouse 501F (pounds)

Pollutant	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Total
PM ₁₀	38,090	38,513	38,937	38,937	154,477
SO ₂	14,894	15,060	15,225	15,225	60,404
NO ₂	59.417	60.077	60.737	60.737	240.968
VOC	21,672	21,913	22,154	22,154	87,893

[District Rule 2201]

Verification: The owner/operator shall submit copies of AERs or ERCs surrendered to the SJVUAPCD in the totals shown to the CPM prior to or upon startup of the CTGs or cooling tower.

AQ—22 NO_x and VOC emission reductions that occurred from April through November may be used to offset increases in NO_x and VOC respectively during any period of the year. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—21**.

AQ—23 NO_x ERCs may be used to offset PM₁₀ emission increases at a ratio of 2.22 lb NO_x at the appropriate distance ratio from Rule 2201, Table 1. [District Rule 2201]

Verification: The project owner shall provide records of the ERCs as part of **Condition AQ—21**.

AQ—24 At least 30 days prior to the construction of permanent foundations, the project owner shall provide the District with written documentation that all necessary offsets have been acquired or that binding contracts to secure such offsets have been entered into. [District Rule 2201]

Verification: The project owner shall provide records of the ERCs as part of **Condition AQ—21.**

AQ—25 Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O₂ = ((a—(bxc/1,000,000)) x 1,000,000 / b) x d, where a = ammonia injection rate(lb/hr)/17(lb/lb. mol), b = dry exhaust gas flow rate (lb/hr)/(29(lb/lb. mol), c = change in measured NO_x concentration ppmv at 15% O₂ across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the project owner may utilize a continuous in—stack ammonia monitor, acceptable to the District, to monitor compliance. At least 60 days prior to using a NH₃ CEM, the project owner must submit a monitoring plan for District review and approval [District Rule 4102]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35.**

AQ—26 Compliance with the short term emission limits (lb/hr and ppmv @ 15% O₂) shall be demonstrated within 90 days of initial operation of each gas turbine engine and annually thereafter by District witnessed in situ sampling of exhaust gasses by a qualified independent source test firm at full load conditions as follows — NO_x: ppmvd @ 15% O₂ and lb/hr, CO: ppmvd @ 15% O₂ and lb/hr, VOC: ppmvd @ 15% O₂ and lb/hr, PM₁₀: lb/hr, and ammonia: ppmvd @ 15% O₂. Sample collection to demonstrate compliance with ammonia emission limit shall be based on a two hour or longer average. [District Rule 1081]

Verification: The project owner shall provide records of compliance as part of **Condition AQ—29.**

AQ—27 Compliance with the startup NO_x, CO, and VOC mass emission limits shall be demonstrated for one of the CTGs (S—1135—313—0 and S—1135—314—0) upon initial operation and at least every seven years thereafter by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. [District Rule 1081]

Verification: The project owner shall provide records of compliance as part of **Condition AQ—29.**

AQ—28 Compliance with natural gas sulfur content limit shall be demonstrated within 60 days of operation of each gas turbine engine and periodically as required by 40 CFR 60 Subpart GG and 40 CFR 75. [District Rules 1081, 2540, and 4001]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35.**

AQ—29 The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. Official test results and field data collected by source tests

required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081]

Verification: The project owner shall notify the CPM and the District 30 days prior to any compliance source test. The project owner shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing. The results and field data collected by the source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ—30 Source test plans for initial and seven—year source tests shall include a method for measuring the VOC/CO surrogate relationship that will be used to demonstrate compliance with VOC lb/hr, lb/day, and lb/twelve month rolling emission limits. [District Rule 2201]

The project owner shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing. The results and field data collected by the source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ—31 The following test methods shall be used PM10: EPA method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18, ammonia: BAAQMD ST—1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]

The project owner shall provide records of compliance as part of **Condition AQ—29.**

AQ—32 The project owner shall notify District of date of initiation of construction no later than 30 days after such the date, date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and date of actual startup within 15 days after such date. [District Rule 4001]

Verification: The project owner shall notify the CPM and the District of the date of initiation of construction no later than 30 days after such date. The project owner shall notify the CPM and the District of the date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and the date of actual startup within 15 days after such date.

AQ—33 The project owner shall maintain hourly records of NOx, CO, and ammonia emission concentrations (ppmv @ 15% O2), and hourly, daily, and twelve month rolling average records of NOx and CO emissions. Compliance with the hourly, daily, and twelve month rolling average VOC emission limits shall be demonstrated by the CO CEM data and the VOC/CO relationship determined by annual CO and VOC source tests. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—34 The project owner shall maintain records of SO_x lb/hr, lb/day, and lb/twelve month rolling average emission. SO_x emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—35 The project owner shall maintain the following records for the CTG: occurrence, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, maintenance of any continuous emission monitor; emission measurements, total daily and annual hours of operation; and hourly quantity of fuel used, and gross three hour average operating load. [District Rules 2201 & 4703]

Verification: The project owner shall compile required data and submit the information to the CPM in quarterly reports submitted no later than 60 days after the end of each calendar quarter.

AQ—36 The project owner shall maintain the following records on a daily basis: the actual local time startup and stop time, length and reason for reduced load periods, total hours of operation, and the type and quantity of fuel used as required by Section 6.2.4 of Rule 4703. [District Rules 2201 & 4703]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of **Condition AQ—35**.

AQ—37 All records required to be maintained by this permit shall be maintained for a period of five years and shall be made readily available for District inspection upon request. [District Rule 2201]

Verification: The project owner shall make records available for inspection by representatives of the District, CARB and the Commission upon request.

AQ—38 Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3. 3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]

Verification: The project owner shall compile the required data in the formats discussed above and submit the results to the CPM quarterly.

AQ—39 The project owner shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the Districts

satisfaction that the longer reporting period was necessary. [District Rule 1100]

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM as part of the quarterly reports of **Condition AQ—35**

AQ—40 The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM as part of the quarterly reports of **Condition AQ—35**

AQ—41 Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]

Verification: The project owner shall submit the continuous emission monitor audit results with the quarterly reports required of **Condition AQ—43**

AQ—42 The project owner shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]

Verification: The project owner shall submit the continuous emission monitor results with the quarterly reports of **Condition AQ—43**

AQ—43 The project owner shall submit a written report to the APCO for each calendar quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred . [District Rule 1080]

Verification: The project owner shall compile the required data and submit the quarterly reports to the CPM and the APCO within 30 days of the end of the quarter.

AQ—44 The project owner shall submit an application to comply with Rule 2540 — Acid Rain Program 24 months before the unit commences operation. [District Rule 2540]

Verification: The project owner shall file their application with the District at least 24 months prior to the commencement of operation of any of the combustion turbine generators.

Conditions of Certification **AQ—45** through **AQ—52** apply to the following equipment:

FORCED DRAFT COOLING TOWER WITH 7 CELLS AND HIGH EFFICIENCY DRIFT ELIMINATOR:

AQ—45 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—46 The project owner shall submit drift eliminator design details and vendor specific emission justification for the correction factor to be used to correlate blowdown TDS to drift TDS and the amount of drift that stays suspended in the atmosphere in the equation in **Condition AQ—51** to the District. [District Rule 2201]

Verification: 30 days prior to commencement of construction of the cooling towers, the project owner shall submit the information required above to the District and the CPM.

AQ—47 The project owner shall submit cooling tower design details including the cooling tower type and materials of construction to the District at least 30 days prior to commencement of construction, and at least 90 days before the tower is operated. [District Rule 7012]

Verification: 30 days prior to commencement of construction of the cooling towers, the project owner shall submit the information required above to the District and the CPM.

AQ—48 No hexavalent chromium containing compounds shall be added to cooling tower circulating water. [District Rule 7012]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—49 Drift eliminator drift rate shall not exceed 0.0006%. [District Rule 2201]

Verification: The project owner shall submit documentation from the selected cooling tower vendor that verifies the drift efficiency to the CPM 30 days prior to commencement of construction of the cooling towers.

AQ—50 PM₁₀ emission rate shall not exceed 8.08 lb/day. [District Rule 2201]

Verification: Please refer to **Condition AQ—51**

AQ—51 Compliance with the PM₁₀ daily emission limit shall demonstrated as follows: PM₁₀ lb/day = circulating water recirculation rate * total dissolved solids concentration in the blowdown water * design drift rate * correction factor. [District Rule 2201]

Verification: The project owner shall compile the required daily PM₁₀ emissions data and maintain the data for a period of five years. The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—52 Compliance with PM₁₀ emission limit shall be determined by circulating water sample analysis by independent laboratory within 90 days of initial operation and weekly thereafter. [District Rule 1081]

Verification: The project owner shall compile the required daily PM₁₀ emissions data and maintain the data for a period of five years. The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

Conditions of Certification **AQ—53** through **AQ—62** apply to the following equipment:

SAMPLE EQUIPMENT DESCRIPTION: 368 HP DETROIT DIESEL MODEL DDFP—06FA DIESEL—FIRED IC ENGINE POWERING EMERGENCY FIRE WATER PUMP S—1135—316—0:

AQ—53 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—54 No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—55 Engine shall be equipped with a turbocharger and intercooler/aftercooler.
[District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—56 Engine shall be equipped with an operational non—resettable hour meter.
[District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—57 The engine shall be equipped with a positive crankcase ventilation (PCV) system or a crankcase emissions control device of at least 90% control efficiency unless UL certification would be voided. [District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—58 The diesel engine shall be operated with an initial injection timing of 16 degrees BTDC (before top dead center) or less. [District Rule 2201].

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—59 The sulfur content of the diesel fuel used shall not exceed 0.05% by weight. [District Rule 2201]

Verification: Please refer to **Condition AQ—62**

AQ—60 Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ—61 The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 200 hours per year. [District Rules 2201 and 4701]

Verification: The project owner shall compile records of hours of operation of any of the IC engines and include those records as part of the quarterly reports submitted to the CPM under Condition **AQ—35**.

AQ—62 The project owner shall maintain records of hours of non—emergency operation and of the sulfur content of the diesel fuel used. Such records

shall be made available for District inspection upon request for a period of five years. [District Rules 2201 and 4701]

Verification: The project owner shall compile records of hours of operation of the IC engines and of the diesel fuel purchased that includes the sulfur content, and maintain the data for a period of five years. The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

B. PUBLIC HEALTH

The public health analysis supplements the previous discussion on air quality and looks at potential public health effects from project emissions of toxic air contaminants. In this analysis, the Commission considers whether such emissions will result in significant adverse public health impacts that violate standards for public health protection.⁴¹

SUMMARY OF THE EVIDENCE

Project construction and operation will result in routine emissions of toxic air contaminants (TACs). (Ex. 15, p. 75.) These substances are categorized as noncriteria pollutants because there are no ambient air quality standards, established to regulate their emissions.⁴² (*Ibid.*)

In the absence of standards, state and federal regulatory programs have developed a health risk assessment procedure to evaluate potential health effects from TAC emissions.⁴³ The Air Toxics Hot Spots Information and Assessment Act requires the quantification of TACs from specified facilities that are categorized according to their emissions levels and proximity to sensitive receptors. (Health and Safety Code, /44360 et seq.)

⁴¹ This Decision addresses other potential public health concerns in the following sections. The accidental release of hazardous materials is discussed in Hazardous Materials Management and Worker Safety and Fire Protection section. Electromagnetic fields are discussed in the section on Transmission Line Safety and Nuisance. Potential impacts to soils and surface water sources are discussed in the Soils and Water Resources section. Hazardous and non—hazardous wastes are described in the Waste Management section.

⁴² Criteria pollutants are discussed in the Air Quality section. They are pollutants for which ambient air quality standards have been established by local, state, and federal regulatory agencies. The emission control technologies that the project owner will employ to mitigate criteria pollutant emissions are considered effective for controlling noncriteria pollutant emissions from the same source.

⁴³ The health risk assessment protocol is set forth in the Air Toxics Hot Spot Program Risk Assessment Guidelines developed by the California Air Pollution Control Officers Association (CAPCOA) pursuant to the Air Toxics Hot Spots Information and Assessment Act (Health and Safety Code, /44360 et seq.). (See, Ex. 1, p. 5.16—2.)

1. Health Risk Assessment

Applicant performed a health risk assessment that was reviewed by Staff and the Air District. Applicant's risk assessment employed scientifically accepted methodology that is consistent with the CAPCOA Guidelines and with methods developed by the California Office of Environmental Health Hazard Assessment (OEHHA). (Ex. 1, /5.16.2.2 et seq.; Ex. 15, p. 78.) This approach emphasizes worst—case-screening analysis to evaluate the highest level of potential impact.

Applicant included the following steps in its analysis:

- Hazard identification in which each pollutant of concern is identified along with possible health effects;
- Dose—response assessment in which the relation between the magnitude of exposure and the probability of effects is established;
- Exposure assessment in which the possible extent of pollutant exposures from a project is established for all possible pathways by dispersion modeling; and
- Risk characterization in which the nature and the magnitude of the possible human health risk is assessed.

The risk assessment addresses three categories of health impacts: acute (short—term), chronic (long—term), and carcinogenic adverse health effects. (Exs. 1, /5.16; 15, pp. 80—83.) Regulatory agencies use the hazard index method to assess the likelihood of acute or chronic non—cancer effects. (*Ibid.*)

In this approach, a hazard index is a numerical representation of the likelihood of significant health impacts at the reference exposure levels (RELs) expected for the source in question. After calculating the hazard indices for the individual pollutants,⁴⁴ these indices are added together to obtain a total hazard index. A total hazard index of 1.0 or less is considered an insignificant effect. (Ex. 15, p. 79.)

Potential cancer risk is calculated by multiplying the exposure estimate by the potency factors for the individual carcinogens involved.⁴⁵ The exposure estimate is based on a worst—case scenario, which assumes a maximally exposed individual (MEI) at the point of highest toxicity 24 hours a day, 365 days a year over a 70—year period. (*Ibid.*)

The greatest true exposure is likely to be at least 10 times lower than that calculated using the MEI assumption since no real person would be in the same spot for 70 years. (Ex. 1, / 5.16.2.5.) Further, annual emissions are calculated assuming simultaneous operation of all turbines at 100 percent load, which will not always occur under real operating conditions. (*Id.*, at p. 5.16—9.) Given the conservatism in the various phases of this calculation process, the numerical estimates are designed to represent the upper bounds of cancer risk. Staff considers a potential cancer risk of one in a million as the level of significance. (Ex. 15, p. 80.)

⁴⁴ The following noncriteria pollutants were considered with regard to possible cancer risk: acetaldehyde, benzene, 1,3 butadiene, formaldehyde, PAHs and propylene oxide. (Exs. 15, p. 31; 1, / 5.16, Table 5.16—1.)

⁴⁵ Various state and federal agencies specify different cancer risk significance levels. Under the Air Toxics Hot Spots and the Proposition 65 programs, for example, a risk of 10 in a million is considered significant and used as a threshold for public notification. The SJVUAPCD considers the same risk of 10 in a million as acceptable for a source such as PEF where the best available control technology for air toxics (T—BACT) is used. (Ex. 15, pp. 79-80.)

2. Potential Impacts

Several sensitive receptors (schools, the elderly, and hospitals) are located within a ten—mile radius of the site. (Exs. 15, p. 77; 1 p. 5.16.1.) Applicant performed EPA—approved air dispersion modeling as discussed in the **Air Quality** section, and determined that the point of maximum impact for project emissions would be about 1.6 miles (2.5 Km) southwest of the project site. (Ex. 1,/5.16.2.4.1.)

a) Construction

Potential construction impacts may result from windblown dust created by site grading activities and diesel emissions from heavy equipment and other vehicles. (Ex. 1, / 5.2 & 5.16.2.1.) The procedures for minimizing dust exposure are addressed in the **Air Quality** section. (See, Conditions **AQ—C1** and **AQ—C2**)

No significant public health effects are expected during construction since construction—related emissions are temporary and localized. (Ex. 15, p. 80.) All predicted maximum concentrations of pollutants from construction vehicles and equipment will occur at locations along the immediate property boundary, resulting in no long—term impacts to the public. (Exs. 1,/5.16.2.1, 15, p. 80.) The project owner will install soot filters on construction vehicles. (See Condition **AQ—C2**)⁴⁶

b) Operation

TACs emitted in combustion byproducts from the project s exhaust stacks have the potential to cause adverse health effects. (Ex. 15, p. 81.) Applicant calculated a *chronic* hazard non-cancer index of 0.36 for the maximum impact location, assuming the SCR alternative for NOx control. (Ex. 1, p. 5.16—7.)

Applicant calculated an *acute* non—cancer hazard index of 0.07 for the identical maximum impact location and SCR system. (Ex. 1, p. 5.16—6.)

⁴⁶ Construction measures for worker safety are incorporated in the **Worker Safety** Conditions.

The evidence establishes that these indices are below the levels of potential health significance, indicating that no significant adverse health effects would likely be associated with the project's noncriteria pollutants. (Exs 1, / 5.16.2.7; 15, pp. 81-82.) Moreover, there are no sensitive receptors near the point of maximum impact. (*Ibid.*)

The highest combined incremental cancer risk was estimated at 1.4 in a million for an individual at the same maximum location identified for the total hazard indices for chronic effects. (Ex. 15, p. 82.) This risk was calculated using existing procedures, which assume that the individual would be exposed at the highest possible levels to all the carcinogenic pollutants from the project for 70 years. (*Ibid.*)

While this risk value was above Staff's de minimis level, it is at a level where we do not consider additional mitigation necessary. (Ex. 15, p. 82.) It is also below the level acceptable to the Air District for sources such as Applicant's present 225 MW facility. (*Ibid.*) Furthermore, the location of maximum cancer risk is largely uninhabitable, foreclosing the potential for the long-term exposure normally associated with the cancer. (*Ibid.*) The maximum risk at the nearest location of human habitation in Derby Acres is 0.02 in a million. (Exs. 1, p. 5.16—6; 15 p. 82.)

3. Cumulative Impacts

When toxic pollutants are emitted from multiple sources within a given area, the cumulative or additive impacts of such emissions could lead to significant health impacts, even when such pollutants are emitted at insignificant levels from the individual sources involved. (Ex. 15, p. 288.) Analyses of such emissions have shown, however, that the peak impacts of such toxic pollutants are normally localized within relatively short distances from the source. (*Ibid.*)

Toxic pollutant levels beyond the point of maximum impact normally fall within ambient background levels. (Ex. 15, p. 82.) We note in this case that the point of maximum impacts was identified as a location only 2.5 Km from the project site. (*Ibid.*) Therefore, potentially significant cumulative impacts are only expected in situations where major sources are located adjacent to one another. (*Ibid.*)

Applicant did not specifically consider the contribution of its present 225 MW facility in assessing the potential for cumulative impacts at levels of health significance. (Ex. 15, p. 83.) Applicant considered only the La Paloma (98-AFC-2), Sunrise (98-AFC-4), and Elk Hills (99-AFC-1) with respect to the toxic pollutants at issue. (*Ibid.*)

Applicant determined that any cumulative exposures at levels of health significance would be unlikely based on:

- (a) the points of maximum impacts for each project, and
- (b) the magnitude of the health risk potentially associated with their respective emissions. (Ex. 15, p. 83.)

Staff concurred with the applicant's conclusions with respect to the projects considered. (Ex. 15, p. 83.) Contributions from Applicant's existing facility would be unlikely to add significantly to such cumulative exposures given the relatively low levels of its toxic emissions, as established during the application process. (*Ibid.*) Staff established the maximum cancer risk from its health analysis to be 0.002 in a million. (*Ibid.*) As such, we conclude that the cancer risks from toxic emissions to be at levels of insignificance vis- -vis existing impacts.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. Normal operation of the proposed project will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.
2. Emissions of criteria pollutants, which are discussed in the Air Quality section of this Decision, will be mitigated to levels consistent with applicable standards.
3. Applicant performed a health risk assessment, using well—established scientific protocol, to analyze potential adverse health effects of noncriteria pollutants emitted by the proposed project.
4. There are several sensitive receptors within a ten—mile radius of the project site.
5. The point of maximum impact for toxic contaminant dispersion is located about 1.6 miles (2.5 kilometers) southwest of the site.
6. Acute and chronic non-cancer health risk from project emissions during construction and operational activities are insignificant.
7. The potential risk of cancer from project emissions is less than significant.
8. There is no evidence of cumulative public health impacts from project emissions.

The Commission therefore concludes that project emissions of non—criteria pollutants do not pose a significant direct, indirect, or cumulative adverse public health risk. All Conditions of Certification that control project emissions are specified in the **Air Quality** section of this Decision.

C. HAZARDOUS MATERIALS MANAGEMENT

Public safety concerns may arise from the construction and operation of a proposed project, especially with respect to the handling, transportation, and disposal of hazardous materials. Therefore, the Commission examines each power plant proposal to determine if the facility is designed to ensure the safe handling and storage of these materials. (Related issues are also addressed in the Waste Management, Worker Safety, and Traffic and Transportation portions of this Decision). A list of hazardous materials and a summary of special handling precautions to be used by Applicant may be found in the AFC and the FSA. (Exs. 15, p. 129 & Table. 5.15-2 (Appendix B); 1, /5.15.)

SUMMARY OF THE EVIDENCE

Several locational factors affect the potential of any project to cause adverse public health and safety impacts. These include the local meteorological conditions, terrain characteristics, any special site factors, and the proximity of population centers and sensitive receptors. (Ex. 15, p. 119.)

The only hazardous material that is proposed for use at the Midway Sunset project site in quantities exceeding reportable amounts is aqueous ammonia.⁴⁷ (Ex. 15, p. 117.) The choice to use aqueous ammonia significantly reduces the risk that would be associated with use of the more economical anhydrous form of ammonia. Use of the aqueous form eliminates the high internal energy associated with the more hazardous anhydrous form, which is stored as a liquefied gas at elevated pressure. Spills associated with the aqueous form are also much easier to contain than those associated with the anhydrous form. (*Ibid.*)

⁴⁷ See California Health and Safety Code, section 25532 (j).

In addition, Applicant is also proposing to use a 19 percent aqueous ammonia solution instead of the more typical 28 percent solution. (Ex. 15, p. 117.) This significantly reduces the vapor pressure of the solution, thus further reducing the emission rate from the surface of any spilled material.⁴⁸ (*Ibid.*)

Applicant modeled potential impacts associated with a worst case accidental release of aqueous ammonia based on EPA default modeling protocols. (Exs. 15, p. 121; 1, / 5.15.) The worst-case release scenario is associated with a postulated spontaneous catastrophic storage tank failure and release of its entire contents. (*Ibid.*)

In conducting this analysis, it was assumed that winds of 1.5 meters per second and category F stability (stagnated air, very little mixing) would exist at the time of the accidental release. (Ex. 15, p. 120-21.) This screening analysis was designed to predict the maximum possible impacts based on distance from the storage tank, without regard to specific direction of transport. (Ex. 15, p. 121.) This analysis indicates that concentrations exceeding 200 PPM would be confined to a distance of about .31 miles (1636 feet) in the event of a worst case accident. (*Ibid.*) The nearest residence is more than 8000 feet from the facility. Staff does not believe that concentrations exceeding 75 PPM would extend to a distance of 8000 feet in the event of a worst case accident.⁴⁹ (*Ibid.*) Based on this analysis the project would not pose a risk of significant impact in the event of an accidental ammonia release. (*Ibid.*)

Other hazardous materials stored in smaller quantities, such as mineral and lubricating oils, corrosion inhibitors and water conditioners, will be present at the

⁴⁸ The proposed project will also require the transportation of aqueous ammonia to the facility. (See Traffic & Transportation section, *infra*.)

⁴⁹ Staff considers 75 ppm to be the threshold level carrying the risk of significant impact. (Ex. 15, p. 120-21 & Appendix A) In other words, if the exposure associated with a potential release would exceed 75 ppm at any public receptor, we may presume that the potential release poses a risk of significant impact. (*Ibid.*)

proposed facility. (Ex. 15, p. 117.) Unlike ammonia, these materials pose no significant potential for off-site impacts because of the quantities on-site, their relative toxicity, and/or their environmental mobility. (*Ibid.*)

Although no natural gas is stored, the project will also involve the construction and operation of a natural-gas pipeline and handling of large amounts of natural gas. (Ex. 15, p. 117-18) We conclude that the risk of a fire and/or explosion from natural gas can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices.⁵⁰ (Ex. 15, p. 121.)

Finally, we conclude that as proposed, the facility will cause no significant risk of off-site impacts. (Ex. 15, p. 121.) Thus, the direct impacts of the project will not add to any existing accidental release risks. As to closure, the requirements for handling of hazardous materials remain in effect until such materials are removed from the site regardless of when facility closure occurs. (Ex. 15, p. 121-22.) The facility owners are responsible for continuing to handle such materials in a safe manner, as required by applicable laws. (Ex. 15, p. 122.) In the event that the facility owner abandons the facility in a manner which poses a risk to surrounding populations, Staff will coordinate with the California Office of Emergency Services, Kern County Department of Environmental Health, and the California Department of Toxic Substances Control (DTSC) to ensure that any unacceptable risk to the public is eliminated. (*Ibid.*)

⁵⁰ The National Fire Protection Association (NFPA) Code 85A requires: 1) the use of double block and bleed valves for gas shut-off; 2) automated combustion controls; and 3) burner management systems. (Ex. 15, p. 121.) These measures and start-up procedures that require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture, will significantly reduce the likelihood of an explosion in gas fired equipment. (*Ibid.*)

FINDINGS AND CONCLUSIONS

Based on the evidence of record concerning the topic area of Hazardous Materials Management, we find and conclude as follows:

1. The Midway Sunset Power Project will use hazardous materials at the facility.
2. Hazardous materials to be used during the construction phase of the Midway Sunset project include gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, solvents, cleaners, sealers, welding flux, paint, and paint thinner.
3. Hazardous materials to be used in substantial quantities during the operation phase of the Midway Sunset project include natural gas and aqueous ammonia. Aqueous ammonia is the only hazardous material that will be stored, handled, and used on-site in reportable amounts.
4. The principal types of potential public health and safety hazards associated with the hazardous materials noted in Findings 2 and 3 above are the accidental release of ammonia gas and fire and explosion from natural gas.
5. The mitigation measures incorporated in the Conditions of Certification below will ensure that risks to public health and safety from hazardous materials are reduced to an insignificant level.
6. The Midway Sunset Power Project will not contribute to a cumulative risk to the public health and safety.
7. Implementation of the Conditions of Certification below will ensure that the Midway Sunset Power Project will comply with the laws, ordinances, regulations, and standards related to hazardous materials management as specified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the hazardous materials used at the Midway Sunset Power Project will not create or contribute to any significant adverse public health and safety impacts from the handling or storage of hazardous materials.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material in reportable quantities, as specified in Title 40, C. F.R. Part 355, Subpart J, section 355.50, not listed in Appendix B, below, or in greater quantities than those identified by chemical name in Appendix B, below, unless approved in advance by the CPM.

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility in reportable quantities.

HAZ-2 The project owner shall develop and implement a safety management plan for delivery of ammonia. The plan shall include procedures, protective equipment requirements, training and a checklist.

Verification: At least sixty days prior to the delivery of aqueous ammonia to the MSCC facility, the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZ-3 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 150% of the storage volume plus the volume associated with 24 hours of rain assuming 25 year storm.

Verification: At least 60 days prior to delivery of aqueous ammonia to the MSCC facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basins to the CPM for review and approval.

D. WORKER SAFETY AND FIRE PROTECTION⁵⁰

Industrial workers use process equipment and hazardous materials on a daily basis. Accidents involving relatively small amounts of material can result in serious injuries. This topical analysis assesses the completeness and adequacy of the measures proposed by the Applicant to comply with applicable worker health and safety requirements.

SUMMARY OF THE EVIDENCE

The Kern County Fire Department (KCFD) provides fire support services for the Applicant. (Ex. 15, p. 88.) Fellows Station 23 is the closest fire station to the proposed facility and would provide initial emergency response.⁵¹ (*Ibid.*) It is located about 5 miles east of the project site. The estimated response time to the proposed facility from Station 23 is about 7 minutes. McKittrick Fire Station 24 will provide back-up support to the facility. (*Ibid.*)

⁵⁰ For additional discussion of fire protection, see the Socioeconomics topic, *infra*.

⁵¹ Taft Station 21 will respond to HAZMAT incidents at the proposed facility. The KCFD requested and was granted an aerial ladder truck for high angle and confined space rescue response, as a condition of certification in the La Paloma matter. (Ex. 15, p. 88; see Condition **WORKER SAFETY-3.**)

WORKER SAFETY AND FIRE PROTECTION Table 1
Fire Station/Fire Protection Capabilities

Station	Response time	Equipment¹	Personnel per shift
Kern County Fire Department Fellows Station 23 100 Broadway Fellows, CA 93224 (661) 768-4341	5 miles east of project site. Estimated response time: 7 minutes	1— Type I Engine 1 — Type 4, FWD watershed Patrol	1 Captain 1 Engineer
Kern County Fire Department McKittrick Station 24 23246 2 nd Street McKittrick, CA 93251 (661) 762-7396	9 miles northeast of project site. Estimated response time: 11-12 minutes	2— Type I Engines 1 — Type 4, FWD watershed Patrol	1 Captain 1 Engineer
Kern County Fire Department Taft Station 21 303 10 th Street Taft, CA 93268 (661) 765-2155	10 miles southeast of project site. Estimated response time: 14-15 minutes	2— Type I Engines 1 — Type 4, FWD watershed Patrol 1 — (Quint) Aerial Ladder Truck (to be added)	1 Battalion Chief 1 Captain 1 Engineer 1 Firefighter (3 additional personnel per shift to be added with ladder truck)

Equipment types are defined as:

- Type I fire engine is a primary response unit. It has a minimum 400-gallon water tank, a minimum of 1,200 feet of 2 _ hose or larger, 200 feet of 1 hose, a 20 to 24 extension ladder and a 500-gpm (gallons per minute) heavy stream appliance. This apparatus also has Basic Life Support (BLS) medical treatment capabilities.
- Type 4 squad is a four-wheel drive (FWD) vehicle used for brush fire or watershed patrol.
- Aerial Ladder Truck is a heavy-duty 85-foot, 1,250 gpm (gallons per minute) Quint-type ladder truck with a 300-gallon water tank. The truck is also a primary response unit.

Source: (Ex. 15, p. 89.)

The construction workforce will consist of about 25 workers onsite at project start-up in about March 2001, and increase gradually to a peak of about 400 workers in early 2002. (Ex. 15, p. 89.) The number of construction workers will then gradually decline until project completion. (*Ibid.*) Workers will experience single shift days and a standard 40-hour week, with potential overtime. The project will draw from union shop labor. (*Ibid.*)

1. Impacts

Fire protection systems at the proposed facility would include:

- a carbon dioxide fire protection system for the combustion turbines;
- a deluge spray system;
- fire hydrants and hose stations linked to an underground fire main;
- sprinkler system; and
- smoke detectors, combustible gas detectors and fire extinguishers.

(Ex. 15, p. 90.)

The underground fire main will be looped to allow water flow from two directions and will be equipped with sectional valves to isolate sections in case of a break in the water line. (Ex. 15, p. 90.)

Firewater will be provided from the cooling tower basin with a minimum of 300,000 gallons. (Ex. 15, p. 90) It will be pumped by two 100-percent capacity fire pumps, one electric and one diesel powered, with the capacity of 2,500 gallons per minute. (*Ibid.*) Capacity is based upon a minimum of two hours of fire fighting.⁵²

The new firewater system for the proposed combined cycle expansion will be connected to the existing firewater loop of the existing cogeneration plant. (Ex. 15, p. 90.) The two firewater loops will be isolated with a normally closed manual valve, and will provide backup as required. (*Ibid.*) Total firewater system demand will be based upon the largest single fire demand for the new plant. The

⁵² The pumps will be installed pursuant to National Fire Protection Association (NFPA) standard 20, as published in California Fire Code. (Ex. 15, p. 87, 89.) 20. Both pumps will run continuously until manually stopped once activated. A 50-gpm electric pump will maintain firewater pressure in the fixed automatic firewater distribution system. (Ex. 15, p. 89.) Other relevant worker safety provisions include the California s Health and Safety Code, Labor Code and Titles 8 and 24, 8 CCR Part 450 et seq., and 24 CCR, /3 et seq.

new firewater system will provide 150 to 175-psi minimum pressure.⁵³ (Exs. 15, p. 90; 1, // 3.4.1.12.1 & 3.4.1.12.2.) A California Registered Fire Protection Engineer will design the fire protection system equipment. (Ex. 15, p. 90.) The protection systems will be installed and maintained according to applicable NFPA standards. (*Ibid.*)

Applicant will be required to provide final design diagrams and plans for all required fire protection systems to Staff and to the KCFD, prior to construction and operation of the project. (Ex. 15, p. 91.) All Fire Department access roads, water mains, and fire hydrants shall be installed and operational during construction in accordance with Article 87 of the Fire Code. (*Ibid.*) A final inspection by the Fire Department will be required to confirm that the facility meets all the Fire and Building Code requirements. (*Ibid.*)

Industrial environments are potentially hazardous as workers may be exposed to chemical spills, hazardous waste, fires, moving equipment, and confined space entry and egress hazards problems. (Ex. 15, p. 91.) Applicant will be responsible for its employees, and for assuring that contractors comply with applicable LORS, during construction and operation of all project-related facilities including the transmission lines and pipelines.⁵⁴ (*Ibid.*) Applicant's proposed health and safety practices and plans address construction and ongoing operations, to include incidental construction activities, personal protection equipment and fire suppression. (*Ibid.*) We conclude that these plans and practices provide for a safe work environment and effective fire protection at Applicant's proposed facility. (Ex. 15, pp. 92-97.) Moreover, we conclude that

⁵³ Storage and handling of ammonia and other hazardous chemicals used onsite is addressed in the Hazardous Materials Management Chapter. Fire suppression systems will be installed on equipment used to handle or store flammable materials, such as natural gas, hydrogen and flammable gas containers. (Ex. 15, p. 91.)

⁵⁴ The project owner/operator is responsible for maintaining an operational fire protection system during closure activities. (Ex. 15, pp. 97-98.) The project must also stay in compliance with all applicable health and safety LORS as long as workers are present. (*Ibid.*)

any cumulative impact from the project will be likewise mitigated by Applicant's safety measures and by our Conditions of Certification.

FINDINGS AND CONCLUSIONS

Based upon the evidence of record regarding the topic of worker safety, we find and conclude as follows:

1. Title 8, California Code of Regulations, sections 450 et seq. contain construction Safety Orders, General Industry Safety Orders, a Petroleum Safety Order, and other safety requirements which are applicable to the Midway Sunset Power Project, to work within a _-mile radius of the project site, and to work along linear facilities.
2. Compliance with existing applicable LORS will adequately assure protection of worker health and safety during the construction and operation phases of the Midway Sunset Power Project.
3. In order to comply with applicable requirements, the Applicant must prepare and submit safety and health programs for the project's construction and operation phases.
4. The Conditions of Certification below require the submission and review of safety and health programs for the construction and operation phases.
5. Assuming compliance with the Conditions of Certification contained in this Decision, the project will comply with all LORS intended to protect worker health and safety and identified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the Midway Sunset Power Project will adequately address worker safety and fire protection matters during the construction and operation phases.

CONDITIONS OF CERTIFICATION

SAFETY-1 The project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program, containing the following:

- a Construction Injury and Illness Prevention Program
- a Construction Fire Protection and Prevention Plan
- a Personal Protective Equipment Program

Protocol: The Construction Injury and Illness Prevention Program and the Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the Kern County Fire Department (KCFD) for review and acceptance.

Verification: At least 30 days prior to the start of construction, or a date agreed to by the CPM, the project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program and the Personal Protective Equipment Program, with a copy of the cover letter to Cal/OSHA's Consultation Service. The project owner shall provide a letter from the KCFD stating that they have reviewed and accepted the Construction Fire Protection and Prevention Plan.

SAFETY— 2the project owner shall submit to the CPM a copy of the Project Operation Safety and Health Program containing the following:

- an Operation Injury and Illness Prevention Plan
- an Emergency Action Plan
- an Operation Fire Protection Plan
- a Personal Protective Equipment Program

Protocol: The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program

shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Operation Fire Protection Plan and the Emergency Action Plan shall be submitted to the KCFD for review and acceptance.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operation Safety & Health Program with a copy of the cover letter to the Cal/OSHA s Consultation Services, and Kern County Fire Department comments, stating that they have reviewed and accepted the specified elements of the proposed Operation Safety and Health Plan.

The project owner shall notify the CPM that the Project Operation Safety and Health Program (Injury and Illness Prevention Plan, Fire Protection Plan, the Emergency Action Plan, and Personal Protective Equipment requirements), including all records and files on accidents and incidents, is present on-site and available for inspection.

SAFETY—3 The project owner shall reach an agreement with the Kern County Fire Department (KCFD) regarding shared costs on the fees and payment of those fees for the heavy duty 85-foot 1,250 gpm Quint-type ladder truck with 300-gallon water tank. Staffing of personnel for the truck, and annual payment to the 15-year fund for purchase of a new replacement ladder truck, or other alternative measures agreeable to KCFD.

Protocol: The project owner shall meet with representatives of the Kern County Fire Department to reach an agreement on the following shared costs:

- a. shared costs of a heavy duty 85-foot 1,250 gpm Quint-type ladder truck with 300-gallon water tank;
- b. annual payments to a set-aside fund for the purchase of a new replacement ladder truck approximately 15 years from the date of purchase of the truck in a) above; and
- c. a one-time payment to the Kern County Fire Department to cover the costs of nine new personnel for one year to cover three shifts per day for the new ladder truck

Should the Sunrise and/or Elk Hills projects not be certified by the Energy Commission, the shared costs specified in a) through c) will be distributed among those projects in the vicinity that have been certified.

Verification: Not later than 30 days prior to any site mobilization, the project owner shall provide the CPM with a copy of an agreement between the Kern County Fire Department and the project owners of Sunrise Power Project, La Paloma Generating Project, LLC, and Elk Hills Power Project relative to the agreed-upon fees and payment for the heavy duty 85-foot 1,250 gpm Quint-type ladder truck, staffing, and the 15-year ladder truck replacement fund.

VII. ENVIRONMENTAL ASSESSMENT

As part of its statutory mandate, the Commission must analyze a project's potential effect upon various elements of the human and natural environments.

A. BIOLOGICAL RESOURCES

Our examination of biological resources focuses upon impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological interest in the project vicinity. Here we summarize the potential biological resources impacts due to the project and its related facilities, and address the adequacy of mitigation measures necessary to reduce any identified impacts to less than significant levels.

SUMMARY OF THE EVIDENCE

The proposed project is to be located on the eastern slope of the Temblor Range in the Midway Sunset oilfield of western Kern County. (Ex. 15, p. 305.) The Midway Sunset oilfield is a heavily disturbed area that is characterized by a variety of native and non-native plants. (*Ibid.*) Plant communities found in the project region include valley saltbush scrub, non-native grassland, valley sink scrub and wetlands. Ruderal (weedy) as well as agricultural areas also exist in the project region. (*Ibid.*)

This portion of western Kern County is known to have a variety of sensitive species. (Ex. 15, p. 305.) Many of these plant and animals are state and/or federally listed since very few populations currently exist. (*Ibid.*) One of the most notable sensitive species known to occur in the project region is the San Joaquin kit fox. (*Ibid.*) The San Joaquin kit fox (federally listed Endangered and state listed Threatened) was not seen during field surveys, however scat and tracks were found.⁵⁵(*Ibid.*)

⁵⁵ Other sensitive species that were found during studies for the proposed project are blunt-nosed leopard lizard (state and federally listed Endangered), burrowing owl (California species of special concern), San Joaquin antelope squirrel (state listed Threatened), loggerhead shrike (California species of special

BIOLOGICAL RESOURCES — Table 1
Sensitive Species

Sensitive Plants	Status*
San Joaquin woollythreads (<i>Lembertia congdonii</i>)	FE/CNPS 1B
California jewelflower (<i>Caulanthus californicus</i>)	FE/CE/CNPS 1B
Kern mallow (<i>Eremalche kernensis</i>)	FE/CNPS 1B
Hoover s eriastrum (<i>Eriastrum hooveri</i>)	FT/CNPS 4
Gypsum-loving larkspur (<i>Delphinium gypsophilum</i> ssp. <i>gypsophilum</i>)	CNPS 4
Forked fiddleneck (<i>Amsinckia vernicosa</i> var. <i>furcata</i>)	CNPS 1B
Recurved larkspur (<i>Delphinium recurvatum</i>)	CNPS 1B
Cottony buckwheat (<i>Eriogonum gossypinum</i>)	CNPS 1B
Tejon poppy (<i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>)	CNPS 1B
Heartscale (<i>Atriplex cordulata</i>)	CNPS 1B
Lost Hills saltbush (<i>Atriplex vallicola</i>)	CNPS 1B
Bakersfield saltbush (<i>Atriplex tularensis</i>)	CE/CNPS 1B
Slough thistle (<i>Cirsium crassicaule</i>)	CNPS 1B
Bakersfield cactus (<i>Opuntia basilaris</i> var. <i>treleasei</i>)	FE/CE/CNPS 1B
Oil nestraw (<i>Stylocline citroleum</i>)	CNPS 1B
Sensitive Wildlife	Status*
San Joaquin antelope squirrel (<i>Ammospermophilus nelsoni</i>)	CT
Giant kangaroo rat (<i>Dipodomys ingens</i>)	FE/CE
San Joaquin pocket mouse (<i>Perognathus inornatus neglectus</i>)	FSC
Tulare grasshopper mouse (<i>Onychomys torridus tularensis</i>)	CSC
American badger (<i>Taxidea taxus</i>)	CSC
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE/CT
California condor (<i>Gymnogyps californianus</i>)	FE/CE
Golden eagle (<i>Aquila chrysaetos</i>)	CSC
Swainson s hawk (<i>Buteo swainsonii</i>)	FSC/CT
Northern harrier (<i>Circus cyaneus</i>)	CSC
Burrowing owl (<i>Athene cunicularia</i>)	CSC
LeConte s thrasher (<i>Toxostoma lecontei</i>)	CSC
Prairie falcon (<i>Falco mexicanus</i>)	CSC
Peregrine falcon (<i>Falco peregrinus anatum</i>)	CE
Long-eared owl (<i>Asio otis</i>)	CSC
Mountain plover (<i>Charadrius montanus</i>)	FPT/CSC
California horned lark (<i>Eremophila alpestris actia</i>)	CSC
Loggerhead shrike (<i>Lanius ludovicianus</i>)	FSC/CSC
Western spadefoot toad (<i>Scaphiopus hammondi</i>)	FSC/CSC
Blunt-nosed leopard lizard (<i>Gambelia silus</i>)	FE/CE/CFP
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT
<p>*STATUS — FE = Federally listed Endangered; FT = Federally listed Threatened; FPT = Federal proposed Threatened; CNPS List 1B = Rare and endangered plants of California and elsewhere, and CNPS List 4 = Plants of Limited Distribution (California Native Plant Society 1994); CE = State listed Endangered, CT = State listed Threatened; CSC = State Species of Special Concern; and CFP = State Fully Protected.</p>	

concern), Hoover s eriastrum (federally listed Threatened and California Native Plant Society List 4) and Tejon poppy (California Native Plant Society List 1B). For a complete list of sensitive plant and animal species that were considered by the applicant for the proposed project, refer to Biological Resources Table 1, above.

1. Impacts

The proposed project may directly impact a variety of state and federally listed species known to occur in the project vicinity. (Ex. 15, p. 307.) To address concerns about these potential impacts, Applicant has proposed a variety of mitigation measures they intend to employ to help minimize, or totally avoid, impacting individual sensitive species and their habitat.⁵⁶ (Ex. 15, p. 307; 310-11.)

In addition, the proposed project will result in permanent loss of habitat from the footprints of the project components and temporary loss of habitat from construction activities. (Ex. 15, pp. 8-9; see **Biological Resources Table 2**, below.)

BIOLOGICAL RESOURCES - Table 2
DIRECT IMPACTS ACREAGES

<u>Project facility</u>	<u>Permanent Impacts Acreage</u>	<u>Temporary Impacts Acreage</u>
Power plant	10.0	--
Construction laydown area	--	7.0
Transmission line	0.2	55.0
Water supply pipelines	0.01	0.25
IMPACT ACREAGE TOTALS	10.2 acres	62.25 acres

Source: (Ex. 15, p. 308.)

Staff has identified no indirect impacts to the area s biological resources from the proposed project. (Ex. 15, p. 308.)

⁵⁶ The final list of biological resources mitigation measures to be included in the project s final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) will be completed in consultation with the California Department of Fish and Game (CDFG), the Bureau of Land Management (BLM), the U. S. Fish and Wildlife Service (USFWS), and Energy Commission staff. (See Condition **BIO-8**.)

2. Cumulative Impacts⁵⁷

Four additional power plants (La Paloma (98-AFC-2), Sunrise (98-AFC-4), Pastoria (99-AFC-7 and Elk Hills (99-AFC-1), in addition to this project, may be built in the region in the near future. (Ex. 15, p. 308.) Habitat loss in Kern County is an ongoing regional concern of the CDFG, USFWS, BLM and the Energy Commission.⁵⁸ To address this issue, CDFG and the USFWS require habitat compensation when habitat losses are anticipated for all development projects, including energy projects. (Ex. 15, p. 309.)

Applicant will provide suitable habitat compensation funds to mitigate the project's habitat impacts as follows:

	<u>TYPE OF HABITAT IMPACT</u>		<u>COMPENSATION RATIO</u>		
	Permanent impacts to conserved habitat		4.0:1		
	Permanent impacts to other private habitat		3.0:1		
	Temporary impacts to conserved habitat		2.1:1		
	Temporary impacts to other private habitat		1.1:1		

	Impact	Compensation		Compensation	
	Acreage	X	Ratio	=	Acreage
Permanent loss of conserved habitat	0.1	X	4.0:1	=	0.4-acres
Permanent loss of private habitat	10.1	X	3.0:1	=	30.3-acres
Temporary loss of conserved habitat	0.0	X	2.1:1	=	0.0-acres
Temporary loss of private habitat	62.25	X	1.1:1	=	68.5-acres
TOTAL COMPENSATION ACREAGE					99.2-acres⁵⁹
(Ex. 15, p. 314.)					

⁵⁷ The CEQA Guidelines define cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. (14 Cal. Code of Regs., §15355.)

⁵⁸ Acronyms are designations for the California Department of Fish & Game; the U.S. Fish and Wildlife Service; and the Bureau of Land Management, respectively.

In addition, Applicant will take avoidance measures to minimize impacts to individual listed species. (Ex. 15, p. 309.)

Applicant has expressed a willingness to consider providing their habitat compensation to the Center for Natural Lands Management (CNLM). (Ex. 15, p. 309.) CNLM manages several preserves in Kern County, including the Lokern Preserve, located approximately 10 air-miles northeast of the proposed project site. (*Ibid.*) The Lokern Preserve currently encompasses more than 3,500 acres, and is located within a much larger planning area identified as the Lokern Natural Area. The 44,000 acre Lokern Natural Area has been identified by CDFG, USFWS, BLM and the Energy Commission and other state, federal, and county agencies as an area needing protection since it is relatively undisturbed and contains significant listed species populations. In addition to this project, other energy projects (La Paloma, Sunrise, Pastoria and Elk Hills) have also agreed to provide their habitat compensation funds to CNLM to purchase habitat as part of the Lokern Preserve. (*Ibid.*)

For the foregoing reasons, we are persuaded that the project will not create any incremental effects that are cumulatively considerable, and that the combined impacts associated with the proposed project's incremental effect and the effects of other related projects are insignificant.

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. Sensitive plants and animals exist in the project area.
2. Construction and operation of the Midway Sunset Power Project, if not adequately mitigated, can create adverse impacts to the sensitive biological resources in the project area.

⁵⁹ Staff recommends that the applicant provide **\$148,800** (99.2-acres X \$1,500 per acre; additional habitat compensation funds may be required if more habitat is disturbed during project construction than is anticipated. (Ex. 15, p. 315; see Conditions **BIO-8 & 9.**)

3. The mitigation measures contained in the Conditions of Certification set forth below were developed in cooperation and consultation with the United States Fish & Wildlife Service and with the California Department of Fish and Game.
4. The mitigation measures mentioned above are sufficient to allow the United States Fish & Wildlife Service to issue a formal "Biological Opinion" for the Midway Sunset Power Project.
5. The Conditions of Certification assure that the Midway Sunset Power Project will cause no significant unmitigated adverse impacts to biological resources in the project area.
6. The Conditions of Certification, if properly implemented, ensure that the Midway Sunset Power Project will comply with applicable LORS, which are set forth in the pertinent portion of Appendix A of this Decision.

We therefore conclude that construction and operation of the Midway Sunset Power Project will not create any significant direct, indirect, or cumulative adverse impacts to biological resources.

CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST

BIO-1 Site mobilization (described as any ground disturbing activity other than Energy Commission approved geotechnical work) shall not begin until an Energy Commission CPM-approved Designated Biologist is available to be on site.

Protocol: The Designated Biologist (DB) must meet the following minimum qualifications:

1. A Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. At least three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;
3. At least one year of field experience with biological resources found in or near the project area; and

4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If the CPM determines the proposed DB to be unacceptable, the project owner shall submit another individual's name and qualifications for consideration. If the approved DB needs to be replaced, the project owner shall obtain approval of a new DB by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No disturbance will be allowed in any designated sensitive areas until the CPM approves a new DB and the new biologist is on site.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall submit to the CPM for approval, the name, qualifications, address and telephone number of the individual selected by the project owner as the DB. If a DB is replaced, the information on the proposed replacement, as specified in the condition, must be submitted in writing at least ten working days prior to the termination or release of the preceding DB.

BIO-2 The CPM approved Designated Biologist (DB) shall perform the following during project construction and operation:

1. Advise the project owner's Construction Manager on the implementation of the Biological Resource Conditions of Certification;
2. Supervise or conduct mitigation, monitoring and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as, wetlands and special status species; and
3. Notify the project owner and the CPM of non-compliance with any Biological Resources Condition of Certification.

Verification: During project construction, the DB shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM. During project operation, the DB shall submit record summaries in the Annual Compliance Report.

BIO-3 The project owner's Construction Manager shall act on the advice of the DB to ensure conformance with the Biological Resources Conditions of Certification.

Protocol: The project owner's Construction Manager shall halt, if necessary, all construction activities in areas specifically identified by the

DB as sensitive to assure that potential significant biological resource impacts are avoided.

The Designated Biologist shall:

1. Inform the project owner and the Construction Manager when to resume construction, and
2. Advise the Energy Commission CPM if any corrective actions are needed or have been instituted.

Verification: Within two (2) working days of a DB notification of non-compliance with a Biological Resources Condition of Certification or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition. For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five (5) working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

WORKER ENVIRONMENTAL AWARENESS PROGRAM

BIO-4 The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities during construction and operation, are informed about the sensitive biological resources associated with the project area.

Protocol: The Worker Environmental Awareness Program must:

1. Be developed by the DB and consist of an on-site or training center presentation in which supporting written material is made available to all participants;
3. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
4. Present the reasons for protecting these resources (e.g. requirements of the state and federal Endangered Species Acts);
5. Present the meaning of various temporary and permanent habitat and species protection measures; and
6. Identify whom to contact if there are further comments and questions about the material discussed in the program.

The specific program can be administered by a competent individual(s) acceptable to the DB.

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: At least 60 days prior to the start of site mobilization activities, the project owner shall provide copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the DB and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six (6) months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for the duration of their employment and for six (6) months after their termination.

U. S. FISH & WILDLIFE SERVICE SECTION 7 BIOLOGICAL OPINION

BIO-5 Prior to the start of any site mobilization activities, the project owner shall provide the CPM with a final copy of the project's Section 7 Biological Opinion obtained from the U. S. Fish and Wildlife Service in accordance with the federal Endangered Species Act.

Verification: At least 60 days prior to the start of any site mobilization activities, the project owner shall submit to the CPM a copy of the federal Section 7 Biological Opinion. The Section 7 Biological Opinion terms and conditions will be incorporated into the final BRMIMP and implemented during project construction and operation. For more information about the BRMIMP, see Biological Resources Condition of Certification **BIO-8**, below.

CALIFORNIA DEPARTMENT OF FISH AND GAME INCIDENTAL TAKE PERMIT

BIO-6 Prior to the start of any site mobilization activities, the project owner shall provide the CPM with a final copy of the project's CDFG Incidental Take Permit in accordance with the state Endangered Species Act.

Verification: At least 60 days prior to the start of any site mobilization activities, the project owner shall submit to the CPM a copy of the CDFG Incidental Take Permit. The Incidental Take Permit terms and conditions will be incorporated into the final BRMIMP and implemented during project construction and operation. For more information about the BRMIMP, see Biological Resources Condition of Certification **BIO-8**, below.

CALIFORNIA CONDOR BIRD FLIGHT DIVERTERS

BIO-7 During construction of the new Western Midway Sunset project transmission line, the power plant owner will install USFWS-approved bird flight diverters on the new transmission line ground wire(s).

Protocol: Bird flight diverters must be:

1. Installed to manufacturer s specifications;
3. Replaced when damaged or deemed defective; and
4. Maintained for the full length of the transmission line for the life of the facility.

Verification: No later than 10 days prior to energizing the new transmission line, the project owner will provide photographic verification to the Energy Commission CPM that all required bird flight diverters have been installed, according to manufacturer s specifications, for the full length of the new transmission line.

The project s final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) will provide complete guidance regarding bird flight diverter installation and maintenance. For more information regarding the project s BRMIMP, see Biological Resources condition of certification **BIO-8**.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

BIO-8 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and shall implement the measures identified in the plan. Any changes made to the adopted BRMIMP must be made in consultation with Energy Commission staff, CDFG and the USFWS.

Protocol: The final BRMIMP shall identify:

1. All biological resources mitigation, monitoring, and compliance conditions included in the Energy Commission s Final Decision;
2. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;
3. All mitigation measures identified in the USFWS Section 7 Biological Opinion including requirements for, but not restricted to, preconstruction survey, kit fox den excavation and replacement strategy, small mammal trapping methods, nest surveys, avoidance area distances, blunt-nosed leopard lizard avoidance measures,

delineation of work areas, signage, vehicle speeds, agency contacts/reporting, USFWS work inspections, construction hours, prevention of entrapment of wildlife during construction, firearms restrictions, trash control, worker environmental awareness training, use of rodenticides/herbicides, project lighting, handling of emergencies, habitat compensation, and habitat restoration measures.

4. Required habitat compensation strategy, including provisions for acquisition, enhancement and management, for any temporary and permanent loss of sensitive biological resources;
5. All locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;
6. Aerial photographs of all areas to be disturbed during project construction activities - one set prior to site disturbance and one set after completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;
7. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
7. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
9. All remedial measures to be implemented if performance standards are not met;
10. A discussion of biological resource-related facility closure measures;
11. An agency-approved strategy to address the final disposition of the artificial kit fox dens constructed for the Midway Sunset project that will be addressed by the current project;
12. A process for proposing plan modifications to the Energy Commission CPM and appropriate agencies for review and approval; and
13. Results of vernal pool fairy shrimp surveys and avoidance measures to be implemented if vernal pool fairy shrimp are found along proposed transmission line route.

Verification: At least 60 days prior to start of any site mobilization activities, the project owner shall provide the CPM with the final version of the BRMIMP, and the CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved BRMIMP must be made only after consultation with Energy Commission staff, CDFG and the USFWS. The project

owner shall notify the CPM five working days before implementing any CPM approved modifications to the BRMIMP.

Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which mitigation and monitoring plan items are still outstanding.

HABITAT COMPENSATION

BIO-9 To compensate for temporary and permanent impacts to sensitive species habitat, the project owner will provide no less than \$148,800 to the Center for Natural Lands Management.

Verification: To account for inflation and other anticipated changes in habitat compensation costs, the project owner will consult the Center for Natural Lands Management (Brenda Pace, 541 330-5533) no less than 90 days prior to the start of any project related ground disturbance, and CNLM will identify the final cost per acre and total compensation amount. Once the final habitat compensation amount has been determined and no less than 60 days prior to the start of any project related ground disturbance activities, the project owner will provide written verification to the CEC CPM that all habitat compensation funds (including the endowment) have been provided to CNLM.

Within 90 days after completion of project construction, the project owner shall provide aerial photographs to the CPM that were taken after construction. The project owner will also provide an analysis of the amount of any additional habitat disturbance than that identified in this staff assessment. The CPM will notify the project owner of any additional funds required to compensate for any additional habitat disturbances at the adjusted market value at the time of construction to acquire and manage habitat.

FACILITY CLOSURE

BIO-10 The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address the local biological resources. The biological resource facility closure measures will also be incorporated into the Western Midway Sunset Project BRMIMP.

Protocol: The planned permanent or unexpected permanent closure plan will require a discussion of the feasibility of the following biological resource-related mitigation measures:

1. Removal of transmission conductors when they are no longer used and useful;

2. Removal of all power plant site facilities; and
3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species.

At least 12 months (or a mutually agreed upon time) prior to the commencement of closure activities, the project owner shall address all biological resource-related issues associated with facility closure in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan, and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

Verification: At least 12 months (or a mutually agreed upon time) prior to the commencement of closure activities, the project owner shall address all biological resource-related issues associated with facility closure in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan, and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

B. CULTURAL RESOURCES

This section discusses cultural resources, defined as including the structural and cultural evidence of the history of human development and life on earth. These resources assist in the understanding of our culture, our history, and our heritage. Information that can be used to determine the sequence of past human occupation and use of an area is provided by the:

- spatial relationships between an undisturbed resource site and the surface environmental resources and features, and
- an analysis of the locational context of the resource materials within the site and beneath the surface.

The term cultural resources refers generally to those resources, which are typically placed in one of three categories: (1) prehistoric archaeological resources; (2) historic archaeological resources; and (3) ethnographic resources. (Ex. 15, p. 255.)

The first category refers to those resources relating to the prehistoric human occupation and use of an area; they typically include sites, deposits, structures, artifacts, rock art, trails, and other traces of prehistoric human behavior. (Ex. 15, p. 255.) Historic archaeological resources are those materials usually associated with non-Native-American exploration and settlement of an area, and correlates with the beginning of a written historical record. (*Ibid.*) Such resources include deposits, sites, structures, traveled ways, artifacts, documents, or other indicia of human activity. (*Ibid.*) Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group such as Native Americans, or African, European, or Asian immigrants. (Ex. 15, p. 256.) These materials include:

- traditional collecting areas,
- ceremonial sites,

- topographic features,
- cemeteries,
- shrines, or
- ethnic neighborhoods and structures. (*Ibid.*)

SUMMARY OF THE EVIDENCE

Oil production and agriculture have previously disturbed the project vicinity. (Ex. 15, p. 260.) To the north, the McKittrick area is rich in both marine and non-marine fossils and is also noted for chert outcroppings that were exploited prehistorically as a lithic resource. (Exs. 15, p. 260; 1, p. 5.7-5.) There are a few small springs and ephemeral water sources in the area, but no permanent streams. The area, which is now essentially a dessert, was at one time richly watered and included wetlands plant, animals and waterfowl. (Ex. 15, p. 260.)

Archaeological literature indicates that early residents of California typically lived near water sources that could provide them with access to a wide variety of plant and animal resources. (Ex. 15, p. 260.) Until the 1840 s, the ancient Buena Vista Lakeshore was present a few miles from the project area. (*Ibid.*) In the 1940 s W.R. Wedel conducted archaeological excavations at a complex of midden and burial sites along the southwestern shore of Buena Vista Lake. (*Ibid.*) In the 1960s s D. A. Fredrickson and co-workers discovered a more deeply buried component to the site. (*Ibid.*) Much of the archaeological investigation in this area focused on areas threatened by development. (Exs. 15, p. 260; 1 , p. 5.7-5 to 5.7-7.)

Archaeological evidence indicates that the project area was inhabited primarily by the Southern Valley Yokuts. (Ex. 15, p. 260.) There is information however, that indicates the western margin of the project area may have been inhabited by the Cuyama branch of the Interior Chumash. (*Ibid.*) There is additional evidence that indicates that these two groups may have jointly used the area and at the least, engaged in trade. (*Ibid.*)

Spanish missionaries began their exploration and development of the missions in California in 1769 starting in San Diego and ending with the missions in San Rafael and Sonoma, in 1823. (Ex. 15, p. 260.) Miller and Lux established headquarters at Buttonwillow for their massive ranching empire during the last half of the 19th century. (*Ibid.*) The Midway area boomed only after oil seepage was identified and the name Midway was used to identify a location midway between Asphalto (now McKittrick) and Sunset. (Exs. 15, pp. 260-61; 1, p. 5.7-13.)

Applicant, through a literature and records search, has identified the Area of Potential Effect (APE) for the plant site as 100 feet outside the planned disturbance area. (Exs. 15, p. 261; 1, p. S1-5.7-1.) The APE for the transmission line was established as lying 50 feet on either side of the proposed centerline. (*Ibid.*) Based on the literature and records search a total of 29 cultural resource locations were identified within the project APE. (Exs. 15, p. 261; 1, p. 4.) The archaeological methods employed to survey the area were oriented toward identification of both prehistoric and historic resources. (Ex. 15, p. 261.) Except for specific areas along the transmission line route and Crocker Canyon, Applicant has reported that the archaeological sensitivity of the surveyed area is low. (Ex. 15, pp. 260-61.)

Specifically, the proposed project site is an area that has experienced oilfield development in the south of the project site and agriculture in the northeast. (Exs. 15, p. 262; 1, pp. 5.7-15 & 6.) In addition, much of the area has been disturbed by previous oil production activity and road building. (*Ibid.*) Two isolates were previously identified within the project site area, however, and these two isolates may signal a potentially buried archaeological site. (*Ibid.*)

Two existing gas lines serve Applicant's existing 225 MW facility and are sufficient in size also to serve the proposed project. (Exs. 15, p. 262; 1, pp. 1-4.)

The 16 inch, 1.8 mile raw water line would be constructed along a previously established right-of-way on existing pipe supports, where there are no previously recorded sites within the vicinity. (Ex. 15, p. 262.) Most of the approximately 19-mile transmission line route has been previously surveyed. (Ex. 15, p. 262.) The survey utilized a 1,000 to 2,000 foot wide corridor along the transmission line route. (*Ibid.*) One previously recorded, but not evaluated, site was identified. (*Ibid.*) Applicant has employed a Native American consultant/monitor during portions of its surveys, and generally as a project consultant on cultural resources. (12/13/00 RT 25:18-35:15; Exs. 19;15, pp. 262; 1, pp.1-6.)

The consultant, Mr. Robert Gomez offered public comment at the evidentiary hearing, and submitted a letter which the Committee received into evidence. (12/13/00 RT 25:18-35:19.) In sum, Mr. Gomez commented on the importance of recognizing the cultural sensitivities of the area, and the fact that cultural artifacts may be found. (*Ibid.*) Both Applicant and Staff offered him reassurance that the proposed conditions of certification would address his concerns. (*Ibid.*)

1. Impacts

Since project development and construction will entail surface and sub-surface disturbance of the ground, the proposed project has the potential to adversely affect both known and previously unknown cultural resources. (Ex. 15, p. 263.) Direct impacts are those which may result from the immediate disturbance of resources, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, or excavation. (*Ibid.*)

On the other hand, indirect impacts are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or vandalism to exposed resource materials due to improved accessibility. (Ex. 15, p. 354.) Cumulative impacts to cultural resources may occur if increasing

amounts of land are cleared and disturbed for the development of multiple projects in the same vicinity as the proposed project. (*Ibid.*)

The potential for the project to cause impacts to cultural resources is related to the likelihood that such resources are present and whether they are actually encountered during project development and construction activities. (Ex. 15, p. 262.) Twenty-nine archaeological sites, features, or objects are known to be located within one mile of the proposed project. These sites include historic-era buildings. (*Ibid.*) The presence of numerous sites in some locations along the transmission line route indicates a high potential for previously unknown historic and prehistoric resources to be encountered and affected during project construction in areas within the APE. (*Ibid.*)

There are no previously recorded cultural resources sites present within the project site or laydown area.⁶⁰ (Ex. 15, p. 264.) There are twenty-seven previously identified sites and isolates along the proposed transmission line route. (*Ibid.*) Applicant has identified three of these sites CA-KER-2720, CA-KER-2721, PL6 as possessing value that would make them eligible for listing on the NRHP or CRHR.⁶¹ Additional sites that have been damaged, but may retain integrity and significant archaeological materials identified along this route are CA-KER-34/35/36, CA-KER-4013, CA-KER-4014 and PL-3, 4 and 5. (*Ibid.*) There is a potential for the instillation of power poles to impact these resources

⁶⁰ Approximately 10 acres for project facilities and an additional 6 acres for a laydown area, totaling 16 acres, are likely to be disturbed by the proposed project. (Exs. 15, p. 264; 1, 5.7-1.). The six-acre laydown area was previously used as a laydown area for Applicant's existing facility. (*Ibid.*)

⁶¹ The significance of historical and prehistoric cultural resources is judged in accordance with the criteria for eligibility for nomination to the National Register of Historic Places as defined in 36 CFR 60.4. (Ex. 15, p. 265.) Under federal law, only historical or prehistoric sites, objects, or features, or architectural resources that are assessed by a qualified researcher as important or significant in accordance with federal guidelines need to be considered regarding potential impacts. If such resources are determined to be significant, and therefore eligible for listing in the National Register, as well as the California Register, they are afforded certain protection under the National Historic Preservation Act and/or CEQA. (*Ibid.*)

(Ex. 1, p. 5). Between approximately Mile-Post 14 to Mile-Post 19, outside the APE but of concern to Staff, there are several locations where burials were previously discovered. (Ex. 15, p. 264.)

Although an existing water supply corridor, and natural gas lines would be used for the proposed project, twenty two sites, primarily associated with oil field development, had been recorded within a two-mile radius of this study area indicating that this area is a sensitive archaeological zone.⁶² (Exs. 15, pp. 264-65; 1, p. 21.)

2. Cumulative Impacts

Proposed developments such as large power generation projects and associated linear facilities, and ongoing oil field and agricultural production, are extending farther into the southern San Joaquin Valley. (Ex. 15, p. 267.) The combined effects of this development can accelerate the potential for continued disturbance of cultural resource sites, the loss of significant information, and alteration of an historical landscape. (*Ibid.*) The level of cumulative impact may be expected to grow as increasing development opens more undisturbed areas and eventually exposes highly sensitive cultural resource sites. (*Ibid.*)

⁶² Applicant's July 7, 2000, survey of the water line confirmed that the area is very disturbed due to a long history of oil production, and no archaeological remains were found to be present. (Ex. 1, pp. 4-5.)

The La Paloma project, Applicant's proposed project and its existing 225 MW facility, and the Sunrise project all propose to use approximately the same transmission corridor. (Ex. 15, p. 267.) Mitigation measures are required of each project to avoid cultural resources identified in the vicinity of this corridor. (*Ibid.*) Likewise, we conclude that Applicant can mitigate impacts to both undetermined and identified sites to less than significant by following the recommendations for monitoring and mitigation set forth in the conditions of certification.

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. Cultural resources exist in the general project area.
2. Construction activities associated with the Midway Sunset Power Project and its related facilities present the most likely potential for adverse impacts to cultural resources.
3. The evidence establishes the likelihood that significant historical resources are present surrounding areas that may be disturbed by project construction.
4. Construction-related disturbance to historical resources would likely have a significant impact if not mitigated.
5. Adverse impacts may be satisfactorily mitigated by implementation of appropriate mitigation measures.
6. The Conditions of Certification listed below contain measures that will ensure that construction of the Midway Sunset Power Project and its related facilities will not create significant direct, indirect, or cumulative adverse impacts to cultural resources.
7. Implementation of the Conditions of Certification below will assure that the Midway Sunset Power Project will comply with all applicable LORS

pertaining to Cultural Resources set forth in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the Midway Sunset Power Project will not create any significant direct, indirect, or cumulative adverse impacts to cultural resources.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of project-related ground disturbance (which is defined for this condition and all cultural conditions that follow as any vegetation clearance, project site preparation, grading, trenching, filling; excavation or augering), the project owner shall provide the California Energy Commission (Energy Commission) Compliance Project Manager (CPM) with the name and statement of qualifications of its DCRS, who would be responsible for implementation of all cultural resources Conditions of Certification.

Protocol: The statement of qualifications for the DCRS shall include all information needed to demonstrate that the specialist meets the minimum qualifications set forth below, including the following:

- a) a graduate degree in anthropology, archaeology, California history, cultural resource management, or a comparable field;
- b) at least three years of archaeological resource mitigation and field experience in California; and
- c) at least one year s experience in each of the following areas:
 - 1. leading archaeological resource field surveys;
 - 2. leading site and artifact mapping, recording, and recovery operations;
 - 3. marshalling and use of equipment necessary for cultural resource recovery and testing;
 - 4. preparing recovered materials for analysis and identification;
 - 5. determining the need for appropriate sampling and/or testing in the field and in the lab;
 - 6. directing the analyses of mapped and recovered artifacts;

7. completing the identification and inventory of recovered cultural resource materials; and
8. preparing appropriate reports to be filed with the receiving curation repository, the State Historic Preservation Officer (SHPO), and the appropriate regional archaeological information center(s).

The statement of qualifications for the DCRS shall include:

- a) a list of specific projects the specialist has previously worked on;
- b) the role and responsibilities of the specialist for each project listed; and
- c) The names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

Verification: At least 90 days prior to the start of project-related ground disturbance, the project owner shall submit the name and statement of qualifications of its DCRS to the CPM for review and written approval.

At least ten days, but no more than 30 days, prior to the start of any project-related ground disturbance, the project owner shall confirm in writing to the CPM that the approved DCRS will be available at the start date and is prepared to implement the cultural resource Conditions of Certification.

At least ten days prior to the termination or release of a DCRS, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and a statement of qualifications of the proposed new DCRS.

CUL-2 Prior to the start of project-related ground disturbance, the project owner shall provide the DCRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps provided will include the USGS 7.5 minute topographic quadrangle map and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. If the DCRS enlargements or strip maps for linear facility routes, the project owner shall provide them. In addition, the project owner shall provide a set of these maps to the CPM at the same time that they are provided to the specialist. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes, to the DCRS and the CPM within five days. Maps shall show the location of all areas

where surface disturbance may be associated with project related access roads, and any other project components.

Verification: At least 75 days prior to the start of project-related ground disturbance on the project, the project owner shall provide the DCRS and the CPM with the maps and drawings. Copies of maps or drawings reflecting changes to the footprint of the power plant and/or linear facilities shall be submitted to the cultural resources specialist and the CPM within five days of the changes.

CUL-3 Prior to the start of project-related ground disturbance, the DCRS shall prepare, and the project owner shall submit to the CPM for review and written approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts to sensitive cultural resources. Approval of the CRMMP, by the CPM, shall occur prior to any project-related ground disturbance.

Protocol: The CRMMP shall include, but not be limited to, the following elements and measures.

- a. A proposed research design that includes a discussion of questions that may be answered by the mapping, data and artifact recovery conducted during monitoring and mitigation activities, and by the post-construction analysis of recovered data and materials.
- b. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the pre-construction, construction, and post-construction analysis phases of the project.
- c. Identification of the person(s) expected to perform each of the tasks; a description of each team member s qualifications and their responsibilities; and the reporting relationships between project construction management and the mitigation and monitoring team.
- d. A discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.
- e. A discussion of any measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these measures will be implemented prior to the start of construction and how long

the measures will be needed to protect the resources from project-related effects.

- f. A discussion of the location(s) where monitoring of project construction activities is deemed necessary by the DCRS. The specialist will determine the size or extent of the areas where monitoring is to occur and will establish the percentage of the time that the monitor(s) will be present, however monitoring shall be conducted full time in the specified areas that follow. Monitoring shall be conducted during ground disturbance on the transmission line route between mileposts 13 to 19, in the vicinity of site PL-6 and at the proposed project site. A Native American monitor shall be present during ground disturbance or archaeological testing between mileposts 13 to 19. If there is evidence that suggests subsurface cultural resources may be present at pole site locations, 1x1 meter test pits shall be used to determine the presence of resources. If resources are determined to be present, the DCRS or alternate shall contact the CPM. A determination of significance shall be made by the CPM in conjunction with the DCRS or alternate).
- g. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and that all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79.
- h. A discussion of the availability and the designated specialist's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.
- i. Identification of the public institution that has agreed to receive any data and cultural resources recovered during project-related monitoring and mitigation work. Discussion of any requirements, specifications, or funding needed for curation of the materials to be delivered for curation and how they will be met. Also the name and phone number of the contact person at the institution shall be included.

Verification: At least 60 days prior to the start of project-related ground disturbance, the project owner shall provide the CRMMP, prepared by the DCRS, to the CPM for review and approval.

CUL-4 Prior to the start of project-related ground disturbance, the DCRS shall prepare an employee training program. The project owner shall submit the cultural resources training program to the CPM for review and approval.

Protocol: The training program shall discuss the potential to encounter cultural resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training program shall also include the set of resource reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during project activities. The training program shall be presented by the DCRS or qualified member of the cultural resources team(s) approved by the CPM and may be combined with other training programs prepared for biological resources, paleontologic resources, hazardous materials, or any other areas of interest or concern.

Verification: At least 60 days prior to the start of project-related ground disturbance; the project owner shall submit to the CPM for review and written approval, the proposed employee training program, the set of reporting procedures, and the work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during construction. The project owner shall provide the name and resume of the individual(s) performing the training.

CUL-5 Prior to the start of project-related ground disturbance, and throughout the project construction period as needed for all new employees, the project owner shall ensure that the designated cultural resource trainer(s) provide(s) the CPM-approved cultural resources training to all project managers, construction supervisors, and workers. The project owner shall ensure that the designated trainer provides the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during project-related ground disturbance and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction.

Training at the project site may be discontinued after all foundations at the site are completed and the DCRS has inspected the site and determined that no cultural resources will be impacted. Training shall continue for project personnel working in the vicinity of all project linears.

Verification: Within seven days after the start of project-related ground disturbance, the project owner shall provide the CPM with documentation that the designated cultural resources trainer(s) has/have provided to all project managers, construction supervisors, and workers hired before the start of construction the CPM-approved cultural resource training and the set of reporting and work curtailment procedures.

In each Monthly Compliance Report, after the start of construction, the project owner shall provide the CPM with documentation that the designated cultural resource trainer(s) has/have provided to all project managers, construction supervisors, and workers hired in the month to which the report applies, the CPM-approved cultural resources training and the set of resource reporting and work curtailment procedures.

After installation of all foundations at the project site, the project owner shall provide a letter to the CPM indicating that the DCRS has inspected the project site and has not observed any cultural resources that may be impacted by the project.

CUL-6 The DCRS or the specialist s monitor(s) shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered or may be impacted in a previously unanticipated manner during ground disturbance.

If such resources are found, the halting or redirection of construction shall remain in effect until:

- a. The specialist has notified the CPM and the project owner of the find and the work stoppage;
- b. The specialist, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and
- c. Any necessary data recovery and mitigation has been completed.

The specialist, the project owner, and the CPM shall confer within five working days of the notification of the CPM to determine what, if any, determination of significance, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the specialist and team members shall monitor construction activities and implement data recovery and mitigation measures, as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: No more than 30 days or less than ten days prior to the start of project-related ground disturbance, the project owner shall provide the CPM with a letter confirming that the DCRS and monitor(s) have the authority to halt construction activities in the vicinity of a cultural resource find.

For any cultural resource encountered, the project owner shall notify the CPM within 24 hours after the find.

CUL-7 Prior to the start of project-related ground disturbance, and each week throughout project construction, the project owner shall provide the DCRS with a current schedule of anticipated project activity in the following month and a map indicating the area(s) where the construction activities will occur. The DCRS shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Verification: Ten days prior to the start of project-related ground disturbance, and in each Monthly Compliance Report thereafter, the project owner shall provide the CPM with a copy of each weekly schedule of the construction activities. The project owner shall notify the CPM when all ground disturbing activities, including landscaping, are completed.

CUL-8 Throughout the pre-construction reconnaissance surveys and the construction monitoring and mitigation phases of the project, the DCRS and monitor(s) shall keep a daily log of any resource finds and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The daily logs shall indicate by tenths of a post mile, where and when monitoring has taken place, where monitoring has been deemed unnecessary, and where cultural resources were found.

The DCRS shall prepare a weekly summary of the daily logs on the progress or status of cultural resource-related activities.

The DCRS and monitor(s) may informally discuss the cultural resource monitoring and mitigation activities with Energy Commission technical staff.

Verification: Throughout the project construction period, the project owner shall ensure that the daily log(s) and the weekly summary reports

prepared by the DCRS and monitor(s) are available for periodic audit by the CPM.

- CUL-9** The DCRS or monitor(s) shall be present at times the specialist deems appropriate to monitor project-related ground disturbance, in the vicinity of previously recorded archaeological sites and in areas where cultural resources have been identified.

Cultural resource monitoring shall be conducted full time in the specified areas that follow: Cultural resource monitoring shall be conducted during ground disturbance on the transmission line route between mileposts 13 to 19, in the vicinity of site PL-6 and at the proposed project site. A Native American monitor shall be present during ground disturbing activities or archaeological testing between mile posts 13 to 19. If there is evidence that suggests subsurface cultural resources may be present at the pole site locations, 1x1 meter test pits shall be used to determine the presence of resources. If resources are determined to be present, the DCRS or alternate shall contact the CPM. (A determination of significance shall be made by the CPM in conjunction with the DCRS or alternate).

Protocol: Except in the areas specified in this condition, if the DCRS determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner and the CPM of the changes. The DCRS shall use milepost markers and boundary stakes placed by the project owner to identify areas where monitoring is being reduced or is no longer deemed necessary.

Verification: Throughout the project construction period the project owner shall include in the Monthly Compliance Reports to the CPM copies of the weekly summary reports regarding project-related cultural resource monitoring.

- CUL-10** The project owner shall ensure that the DCRS obtains and maintains a current BLM Archaeological Resource Use Permit to gain access to lands managed by the US BLM or other federal agencies, to conduct any surveys, monitoring, data and/or artifact recovery activities on these lands. This use permit is to be obtained from the area office of the BLM in Bakersfield, California, no less than ten days prior to the start of cultural resource activities governed by the permit.

Verification: The project owner shall provide the CPM and the designated BLM representative(s) with a copy of the BLM archaeological resource use permit received by the DCRS, in the next Monthly Compliance Report following its receipt or renewal.

CUL-11 The project owner shall ensure that the DCRS performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural resource materials encountered and collected during pre-construction surveys and during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university (ies), or other appropriate research specialists. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resource site shall be kept confidential and accessible only to qualified CRS s.

CUL-12 Following completion of data recovery and site mitigation work, the project owner shall ensure that the DCRS prepares a proposed scope of work for the Cultural Resources Report (CRR). The project owner shall submit the proposed scope of work to the CPM for review and approval.

Protocol: The proposed scope of work shall include (but not be limited to):

- a. discussion of any analysis to be conducted on recovered cultural resource materials;
- b. discussion of possible results and findings;
- c. proposed research questions which may be answered or raised by analysis of the data recovered from the project; and
- d. an estimate of the time needed to complete the analysis of recovered cultural resource materials and to prepare the CRR.

Verification: The project owner shall ensure that the DCRS prepares the proposed scope of work within 90 days following completion of the data recovery and site mitigation work. Within seven days after completion of the proposed scope of work, the project owner shall submit it to the CPM for review and written approval.

CUL-13 The project owner shall ensure that the DCRS prepares a CRR. The project owner shall submit the report to the CPM for review and written approval.

Protocol: The CRR shall include (but not be limited to) the following:

- a. For all projects:
 1. description of pre-project literature search, surveys, and any testing activities;
 2. maps showing areas surveyed or tested;
 3. description of any monitoring activities;
 4. maps, including maps using a 7.5 minute USGS topographic base, of any areas monitored; and
 5. conclusions and recommendations.
- b. For projects in which cultural resources were encountered, include the items specified under a and also provide:
 1. site and isolate records and maps;
 2. description of testing for, and determinations of, significance and potential eligibility; and
 3. a discussion of the research questions answered or raised by the data from the project.
- c. For projects regarding which cultural resources were recovered, include the items specified under a and b and also provide:
 1. a description of the methods employed in the field and laboratory; a description (including drawings and/or photos) of recovered cultural materials;
 2. results and findings of any special analyses conducted on recovered cultural resource materials;
 3. an inventory list of recovered cultural resource materials; an interpretation of the site(s) with regard to the research design; and

4. the name and location of the public repository receiving the recovered cultural resources for curation.

Verification: The project owner shall ensure that the DCRS completes the CRR within 90 days following completion of the analysis of the recovered cultural materials. Within seven days after completion of the report, the project owner shall submit the CRR to the CPM for review and approval.

CUL-14 The project owner shall submit an original, an original-quality copy, and a computer disc copy (or other format to meet the repository's requirements), of the CPM-approved CRR to the public repository to receive the recovered data and materials for curation, with copies to the State Historic Preservation Officer (SHPO), the appropriate regional archaeological information center(s). If the report is submitted to any of these entities on a computer disc, the disc files must meet SHPO requirements for format and content.

Protocol: The copies of the CRR to be sent to the entities specified above shall include the following (based on the applicable scenario [a, b, or c] set forth in condition **CUL-13**):

- a. originals or original-quality copies of all text;
- b. originals of any topographic maps showing site and resource locations;
- d. originals or original-quality copies of drawings of significant or diagnostic cultural resource materials found during pre-construction surveys or during project monitoring and mitigation and subjected to post-recovery analysis and evaluation.
- e. photographs of any cultural resource site(s) and the various cultural resource materials recovered during project monitoring and mitigation and subjected to post-recovery analysis and evaluation. The project owner shall provide the curation repository with a set of negatives for all of the photographs.

Verification: Within 30 days after receiving approval of the CRR, the project owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO and the appropriate archaeological information center(s).

For the life of the project the project owner shall maintain in its compliance files copies of all documentation related to the filing of the CPM-approved CRR with the public repository receiving the recovered data and materials for curation.

CUL-15 Following the filing of the CPM-approved CRR with the appropriate entities, specified in condition **CUL-14**, the project owner shall ensure that all cultural resource materials, maps, and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the US Secretary of Interior requirements for the curation of cultural resources. The project owner shall pay any fees for curation required by the repository.

Verification: The project owner shall ensure that all recovered cultural resource materials are delivered for curation within 30 days after providing the CPM-approved CRR to the entities specified in **CUL-14**.

For the life of the project the project owner shall maintain in its compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

CUL-16 Prior to the start of project-related ground disturbance, or presence/absence testing required in these conditions, the project owner and the DCRS shall consult with Native American tribal representatives to develop an agreement(s) for qualified (specified in the NAHC Guidelines for Monitoring) monitor(s). The monitor(s) shall be considered member(s) of the cultural resource team and shall be present during the pre-construction and construction phases of the project between mileposts 13 to 19 wherever ground disturbance and cultural resources monitoring activities are conducted.

Verification: At least 30 days prior to the start of project-related ground disturbance, the project owner shall provide the CPM with a copy of all finalized agreements for Native American monitors. If efforts to obtain the services of qualified Native American monitors prove unsuccessful, the project owner shall immediately inform the CPM who will initiate a resolution process.

CUL-17 Prior to initial project site mobilization (i.e., placing a trailer on the site with accompanying equipment, utilities and grading) the project owner must comply with **Cul-1** and **Cul-4** and complete **Cul-5** as it

pertains to management, supervisors and workers involved in this undertaking. The project owner shall comply with **Cul-2** and **Cul-3** for the entire project, but this need not be accomplished before the trailer is placed. If cultural resources are discovered, all cultural conditions shall apply.

Prior to the initial site mobilization, the DCRS shall examine the area of initial project site mobilization and ensure that there are no cultural resources that may require protection or mitigation.

Verification: At least 7 days prior to engaging in the initial project site mobilization defined in this condition, the project owner shall provide the CPM with information authored by the DCRS identifying the area of initial site mobilization. The CRS shall indicate the method(s), procedure(s) and date(s) the cultural resource inspection was performed and an explanation of the anticipated project activities. The document will be reviewed and approved by the CPM.

D. GEOLOGY AND PALEONTOLOGY

This section addresses the project's potential impacts on geological hazards, geological and paleontological resources, and surface water hydrology. Paleontological resources include the fossilized remains or trace evidence of prehistoric plants or animals, which are preserved in soil or rock. These fossils are scientifically important because they help document the evolution of particular groups of organisms and the environment in which they lived.

The purpose of the geological and paleontological analysis is to verify that:

- applicable laws, ordinances, regulations, and standards (LORS) have been identified, and
- the project can be designed and constructed in accordance with all applicable LORS, and in a manner that protects environmental quality and assures public health and safety.

SUMMARY OF THE EVIDENCE

Applicant's project expansion is located along the eastern flank of the Tremblor range and on the north side of a roadway paralleling Crocker Canyon in the western portion of the Midway-Sunset oil field in western Kern County. (Ex. 15, p. 352.) There are two geologic units exposed near the footprint for the power plant expansion: the Tulare formation and older alluvium. (*Ibid.*) The older alluvium is Pleistocene in age and is made up of silty sands and gravels and drains well. (*Ibid.*) The Tulare Formation is a Quaternary age alluvial fan deposit made up of poorly consolidated sands and gravels with silt lenses. (*Ibid.*) The Tulare formation is known to contain vertebrate fossils near the proposed power plant expansion project. Locally the Tulare Formation unconformably overlies the Santa Margarita Formation and the Monterey Formation. (*Ibid.*)

The linear corridors proposed to service the site cross several additional geologic units, namely: alluvial fan deposits, alluvium and formations.⁶³ (Ex. 15, p. 352.) The alluvial fans and alluvium are derived from the weathering of older geologic units such as the Monterey Formation, and the Tulare Formation. (*Ibid.*) These units are primarily made up of unconsolidated sand, silts and may contain local deposits of gravel. (*Ibid.*)

Etchegoin Formation is a Pliocene age marine-unit made up of soils and sands. (Ex. 15, p. 352.) Both the alluvial fan deposits and the alluvium may contain terrestrial fossils. (*Ibid.*) The Miocene age Monterey Formation consists of shale, siltstone, sandstone and conglomerate. Locally the Monterey Formation contains commercial quantities of oil. The main oil-producing unit of the Monterey Formation at the proposed site location is the Potter Sand member. (*Ibid.*) The Potter Sand member of the Monterey Formation does not outcrop near the project. (*Ibid.*)

Locally the Monterey Formation and the Santa Margarita Formations interfinger with one another. (Ex. 15, p. 352.) The Santa Margarita Formation is Miocene in age, and is made up of marine sands and nonmarine sands, and gravels. (Ex. 15, p. 352-53.) Both terrestrial and marine vertebrate fossils have been reported in this unit. (Ex. 15, p. 353.) No permanent surface water bodies are located on or adjacent to the power plant footprint.⁶⁴ (*Ibid.*)

1. Impacts

The project is located within seismic zone 4; however, Staff's site visit did not uncover any surface faulting on the ground at the proposed power plant site, or in aerial photos.

⁶³ These include the Monterey Formation, the Santa Margarita Formation, the Etchegoin Formation, and the Belridge Diatomite Formation. (Ex. 15, p. 352.)

⁶⁴ A minor unnamed ephemeral drainage runs through the site from northwest to east, into a storm water retention-basin. (Ex. 15, p. 353.) The proposed 10-acre power plant expansion footprint is to be a transition pad with an elevation of 1834 feet above mean sea level. (*Ibid.*)

(Ex. 15, p. 353.) Moreover, no active faults are known to cross the proposed power plant footprint.⁶⁵ (*Ibid.*)

The next closest known fault to the power plant expansion site is the Telephone Hills fault located approximately 1.1 kilometers east of the site. (Ex. 15, p. 353.) Electric transmission line crosses both the Midway-McKittrick and the Dabney Faults and several unnamed faults north of the Midway-McKittrick Fault. (*Ibid.*) The water supply line, Route 2, crosses two minor unnamed faults between mileposts 1 and 2. (*Ibid.*) None of the faults is considered active and because they are small, the faults are not significant with respect to the project construction and operation. (*Ibid.*)

The nearest major active fault is the Carrizo Plain segment of the San Andreas Fault. (Ex. 15, p. 353.) The San Andreas Fault is located approximately 10 kilometers west of the site. (*Ibid.*) The maximum credible earthquake estimated for the San Andreas Fault near the Midway Sunset Power Project site is a moment magnitude 7.9 earthquake. (*Ibid.*) The estimated peak horizontal ground acceleration at this site based upon the aforementioned earthquake is 0.5g. (*Ibid.*) Several other faults are located within 100 kilometers of the site, but the design event earthquake using a deterministic approach is the moment magnitude 7.9 earthquake on the Carrizo Plain segment of the San Andreas fault. (Ex. 15, p. 353-354.)

Liquefaction is a condition in which a cohesionless soil may lose shear strength due to a sudden increase in pore water pressure. (Ex. 15, p. 354.) One of the parameters used to assess the potential for liquefaction is the depth to ground water at the site under study. (*Ibid.*) Generally the depth to ground water at a site should be less than 50 feet for liquefaction to be possible. (*Ibid.*) The depth to groundwater beneath the site is estimated to be in excess of 100 feet below existing grade based on soil boring logs for

⁶⁵ A minor fault was observed in the drainage (Crocker Canyon) to the south of the proposed power plant footprint. (Ex. 15, p. 353.) This unnamed fault is the closest known fault to the power plant footprint and is located approximately 200 meters south of the proposed power plant. (*Ibid.*) Several faults cross the proposed linear corridors. (*Ibid.*) Applicant had the faults assessed when the original power plant was being licensed; trenching in 1986, north of Crocker Canyon, did not reveal that the faults continued to the location of the proposed power plant expansion. (*Ibid.*)

the project. (*Ibid.*) Because the alluvium under the site is dense and the depth to ground water is in excess of 100 feet below existing grade, the potential for liquefaction at the power plant site is considered to be negligible. (*Ibid.*)

Hydrocompaction is the process of the loss of soil volume upon the application of water. (Ex. 15, p. 354.) During construction of its existing 225 MW facility, Applicant excavated the footprint to a depth of 14 feet and replaced, compacted and moisture-conditioned the fill in order to mitigate the potential of collapsing soils at the site. (*Ibid.*) The current site has been in service for fourteen years and has not experienced any significant collapsing soils. (*Ibid.*) However, Applicant will assess the power plant footprint and linear facilities with respect to collapsing soils prior to developing the final design of the project. (*Ibid.*)

We concluded that there is no significant potential for subsidence due to ground water withdrawal or dynamic compaction because the proposed project's alluvium and Tulare Formation soils are locally dense, and Applicant will not pump ground water. (Ex. 15, p. 354.)

Soils that contain a high percentage of expansive clay minerals are prone to expansion, if subjected to an increase in water content. (Ex. 15, p. 354.) Expansive soils are usually measured with an index test such as the expansive index potential. (*Ibid.*) In order for a soil to be a candidate for testing, the soil must have high clay content and the clay must have a high shrink-swell potential and a high plasticity index. (*Ibid.*) The soil unit at the proposed power plant expansion site is the Kimberlina Fine Sandy Loam. (*Ibid.*) This soil has a low shrink-swell potential, therefore we conclude that the potential for expansive soil at the site is negligible. (*Ibid.*)

Landslides were not observed on or adjacent to the proposed power plant footprint during a Staff site visit on February 18, 2000. (Ex. 15, p. 354.) We thus conclude that landsliding potential at the proposed power plant site is low, since the site footprint is located on a broad, gently to moderately sloping alluvial fan. (*Ibid.*)

Geological resources near the project include natural gas, and the proposed power plant expansion is located in a major oil field. (Ex. 15, p. 354.) Directional drilling allows the extraction of oil and natural gas from the vicinity of the site without having to drill for oil at the site itself. (*Ibid.*) The State of California Department of Conservation Division of Oil and Gas and Geothermal Resources (DOGGR) requires that a setback from existing oil wells be maintained so that the wells may be serviced. (Ex. 15, p. 355; (see Condition **GEO-3**.)⁶⁶

Paleontological resources were encountered during construction of Applicant's existing 225 MW cogeneration facility, and its underlying geological units have been reported to yield vertebrate fossils. (Ex. 15, p. 355.) These geological units are considered to have a high paleontological significance and a high paleontological sensitivity--the close proximity of the paleontological resource locations to the project marks this formation with a high sensitivity and high potential with respect to paleontological resources. (*Ibid.*)

In addition, the alluvium in the McKittrick Valley is known to contain tar seeps, which have contained well-preserved vertebrate (Quaternary age fossils). (Ex. 15, p. 355.) The geologic map for the proposed project does not identify any tar seeps along the linear facility corridor from the proposed power plant site to the Midway Substation at Buttonwillow. (*Ibid.*) It is possible, however, that tar seeps may be encountered during construction of the linear facility corridor for the electric transmission line.⁶⁷ (*Ibid.*)

Staff observed no fossils at the power plant footprint during a site visit on February 18, 2000; Applicant's paleontologist during field surveys of the proposed power plant site

⁶⁶ This Condition will allow Applicant to develop a linear facility development plan that will ensure that construction of the power plant and linear facilities will not pose a problem in servicing existing oil wells.

⁶⁷ The Belridge Diatomite is considered to have a low paleontological potential and a low paleontological significance. (Ex. 15, p. 355.) Even so, there is a moderate to high probability that vertebrate fossils will be encountered during power plant and related linear facility construction. (*Id.*, at p. 356.) This assessment is based upon the discovery of a large number of fossils, both vertebrate and invertebrate, during construction of the existing facility, which lies adjacent to the proposed power plant expansion. (*Ibid.*)

and linear facilities reported no significant paleontological resources finds. (Ex. 15, p. 355.)

The power plant footprint is not located in a 100-year flood zone. (Ex. 15, p. 355.) Rather, it is located in zone C, an area of minimal flooding.⁶⁸ (*Ibid.*) Minimum grade for the power plant area will be 1 percent and all drainage will be directed away from buildings within the footprint. (*Ibid.*) Surface water drainage from the low hill to the west of the site will be directed around the site to the northern or southern ephemeral stream channels adjacent to the site. (*Ibid.*) Surface water will be collected in an on-site detention basin and evaporated. (Ex. 15, p. 355-56.) The 10-year, 24-hour-storm-event precipitation amount is 2.5 inches; run-off during a 10-year 24-hour storm event should not overwhelm the capacity of the proposed surface water drainage system. (Ex. 15, p. 356.)

Staff has proposed conditions of certification that will enable Applicant to mitigate impacts upon paleontological resources to a less than significant level should they be encountered during construction, operation, and closure of the project. (Ex. 15, p. 355; see Conditions **PAL-1 — PAL-6**) We conclude that:

- our Conditions will mitigate any potential impacts to paleontological resources associated with construction of the proposed project;
- the project is not likely to have any significant impact on geological or paleontological resources, or surface water resources, and is likely to withstand any above-described geological; and
- no cumulative impacts are likely based upon the lack of known significant paleontological or geological resources at the proposed site.

⁶⁸ As depicted on the Federal Emergency Management Agency Flood Insurance Rate Map sheet no. 060075-1200 B, panel 1200. (Ex. 15, p. 355.)

FINDINGS AND CONCLUSIONS

Accordingly, based upon the uncontroverted evidence of record, we find and conclude as follows:

1. Geological and paleontological resources exist in the area of the proposed project.
2. Construction and ground disturbance activities associated with the construction of the Midway Sunset Power Project can potentially impose direct, indirect, and cumulative impacts to paleontological resources.
3. Mitigation measures required by the Conditions of Certification will assure that the activities associated with the Midway Sunset Power Project will cause no direct, indirect, or cumulative adverse impacts to paleontological resources.
4. The Midway Sunset Power Project will have no significant adverse impact on surface water hydrology.
5. The Midway Sunset Power Project will have no significant adverse impact on geological or paleontological resources.
6. Implementation of the Conditions of Certification will ensure that the project is constructed and operated in compliance with applicable laws, ordinances, regulations, and standards identified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the project will not cause any significant adverse direct, indirect, or cumulative impacts to geological or paleontological resources.

CONDITIONS OF CERTIFICATION

- GEO-1** Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the 1998 edition of the California Building Code (CBC) Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) assigned must be approved by the Compliance Project Manager (CPM). The functions of the engineering geologist can

be performed by the responsible geotechnical engineer, if that person has the appropriate California license.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the Chief Building Official (CBO)) prior to the start of construction, the project owner shall submit to the CPM for approval the name(s) and license number(s) of the Certified Engineering Geologist(s) assigned to the project. The submittal should include a statement that CPM approval is required. The CPM will approve or disapprove of the Engineering Geologist(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the Engineering Geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual(s) to the CPM. The CPM will approve or disapprove of the Engineering Geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist(s) shall carry out the duties required by the 1998 CBC, Appendix Chapter 33, Section 3309.4 Engineered Grading Requirement, and Section 3318.1 — Final Reports. Those duties are:

1. Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.
2. Monitor geologic conditions during construction.
3. Prepare the Final Engineering Geology Report.

Protocol: Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3309.3 Grading Designation, shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy of the site for the intended use as affected by geologic factors.

The Final Engineering Geology Report to be completed after completion of grading, as required by the 1998 CBC Appendix Chapter 33, Section 3318.1, shall contain the following: A final description of the geology of the site and any new information disclosed during grading; and the effect of same on recommendations incorporated in the approved grading plan. The engineering geologist shall submit a statement that, to the best of his or her knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications. (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3318, Completion of Work, to the CBO, and to the CPM on request.

GEO-3 Prior to the start of construction, the owner shall submit to the Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) for review and comment, a linear facility development plan. This plan shall describe the routing of the linear facilities, and address all actions to be taken by the project owner to ensure that the project linear facilities will not interfere with the operation, maintenance, or abandonment of any existing oil or natural gas wells.

Verification: At least 60 days prior to the start of construction, the project owner shall submit to the CPM the linear facility development plan, accompanied by a copy of DOGGR's comments on the linear facility development plan, for the CPM's review and approval.

PAL-1 Prior to the start of any project-related construction activities (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall ensure that the Designated Paleontological Resource Specialist (DPRS) approved by the CPM is available for field activities and prepared to implement the conditions of certification.

The DRS shall be responsible for implementing all the paleontological conditions of certification and for using qualified personnel to assist in this work.

Protocol: The project owner shall provide the CPM with the name and statement of qualifications for the DPRS.

The statement of qualifications for the DPRS shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management; and at least three years of paleontological resource mitigation and field experience in California, including at least one year's experience leading paleontological resource mitigation and field activities.

The statement of qualifications shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

If the CPM determines that the qualifications of the Proposed Paleontological Resource Specialist (PPRS) do not satisfy the above requirements, the project owner shall submit another individual's name and qualifications for consideration.

If the approved DPRS is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontological resource specialist by submitting the name and qualifications of the proposed replacement to the CPM, at least 10 days prior to the termination or release of the preceding DPRS.

Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

Verification: At least 60 days prior to the start of construction, the project owner shall submit the name and resume and the availability for its DPRS, to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontological resource specialist.

At least 10 days prior to the termination or release of a DPRS, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new DPRS. Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to the start of project construction, the DPRS shall prepare a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to sensitive paleontological resources, and submit this plan to the CPM for review and approval. After CPM approval, the project owner's designated paleontological resource specialist shall be available to implement the PRMMP, as needed, throughout project construction.

Protocol: In addition to the project owner's adoption of the guidelines of the Society of Vertebrate Paleontologists (SVP 1994) the owner is also to adopt and implement the United States Bureau of Land Management's General Procedural Guidance Manual for Paleontological Resource Management for those portions of the project deemed by the BLM to be

under their jurisdiction. The owner shall develop a PRMMP that shall include, but not be limited to, the following elements and measures:

- A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;
- Identification of the person(s) expected to assist with each of the tasks identified within this condition for certification, and a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities;
- Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;
- an explanation that the DPRS shall have the authority to halt or redirect construction in the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined;
- a discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
- inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and
- identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution.

Verification: At least 45 days prior to the start of construction on the project, the project owner shall provide the CPM with a copy of the PRMMP prepared by the designated paleontological resource specialist for review and approval. The PRMMP shall include a copy of the BLM paleontological resources use permit for the project. If the plan is not approved, the project owner, the DPRS, and the CPM shall meet to discuss comments and negotiate necessary changes.

PAL-3 Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the DPRS shall prepare and conduct CPM-approved training to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

The paleontological training program shall discuss the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if paleontological resources are encountered during project activities. The training program shall be presented by the DPRS and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least 30 days prior to the start of project construction, the project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and the set of reporting procedures the workers are to follow if paleontological resources are encountered during project construction.

If the employee training program and set of procedures are not approved, the project owner, the DPRS, and the CPM shall meet to discuss comments and negotiate necessary changes, before the beginning of construction.

Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as appropriate.

PAL-4 The DPRS shall be present at all times he or she deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in areas where potentially fossil-bearing sediments have been identified. If the designated paleontological resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner.

Verification: The project owner shall include in the Monthly Compliance Reports a summary of paleontological activities conducted by the DPRS.

PAL-5 The project owner, through the DPRS, shall ensure recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the DPRS and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation for and delivery of all significant paleontological resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report (PRR) and shall keep these files available for periodic audit by the CPM.

PAL-6 The project owner shall ensure preparation of a PRR by the DPRS. The PRR shall be completed following completion of the analysis of the recovered fossil materials and related information. The project owner shall submit the paleontological report to the CPM for approval.

Protocol: The PRR shall include (but not be limited to) a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the DPRS that project impacts to paleontological resources have been mitigated.

Verification: The project owner shall submit a copy of the PRR to the CPM for review and approval under a cover letter stating that it is a confidential document. The PRR is to be prepared by the DPRS within 90 days following completion of the analysis of the recovered fossil materials.

PAL-7 The project owner shall include in the facility closure plan a description regarding facility closure activity's potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM 12 months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation measures for paleontological resource management are required in the facility closure plan.

Protocol: The closure requirements for paleontological resources are to be based upon the PRR and the proposed grading activities for facility closure.

Verification: The project owner shall include a description of closure activities described above in the facility closure plan.

D. SOIL AND WATER RESOURCES

This portion of the Decision concentrates on the project's potential to induce erosion and sedimentation, adversely affect surface and groundwater supplies, degrade surface and groundwater quality, and increase the potential for flooding.

SUMMARY OF THE EVIDENCE

Applicant proposes to locate the proposed project on a 10-acre site immediately adjacent to the existing 225 MW cogeneration facility, just north of the Midway-Sunset Oil Field. (Ex. 15, p. 331.) Also proposed is a temporary, 6-acre construction laydown area to the south of the site, adjacent to Crocker Springs Road. (*Ibid.*)

The proposed project is located in the Telephone Hills, which are found along the San Joaquin Valley's southwestern edge, in western Kern County.⁶⁹ (Ex. 15, p. 331.) The Telephone Hills are characterized as a series of rounded, smooth sloped hills extending southeastward from the Temblor Range. (*Ibid.*) The elevation ranges from 1,850 to 2,250 feet above mean sea level. (*Ibid.*) These hills are separated by a highly dissected pattern of ephemeral drainages.

The transmission line that will connect the proposed project's switchyard to PG&E's Midway Substation near Buttonwillow will be located parallel to and within the existing 230-kV line corridor. (Ex. 15, p. 331.) The water supply line will be located along an existing right-of-way (on existing pipe supports) that extend 1.8 miles west/east from the proposed power plant site to the West Kern Water District (WKWD), the water supplier. (*Ibid.*)

⁶⁹ The San Joaquin Valley lies to the east of the Telephone Hills (the Midway Valley, a subvalley), is also to the east. (Ex. 15, p. 331.)

Located in a semi-arid region with hot, dry summers, rainfall in the area of the proposed project approximates between 5.7 inches and 7.95 inches. (Ex. 15, p. 331.) The Department of Water Resources identified the 10 and 50-year recurrences, 24-hour duration storm events for Taft, California, to be 1.48 inches and 1.97 inches, respectively. (*Ibid.*) The evaporation rate in the project vicinity is approximately 62 inches per year. Based on average rainfall data, most of the precipitation occurs during the months of October through May.⁷⁰ (*Ibid.*)

At the project site, groundwater is encountered at depths greater than 175 feet. (Ex. 15, p. 331.) The major aquifer in this project area is the Tulare Formation and the older, underlying marine formations. (*Ibid.*) The Tulare Formation, which includes alluvial and non-marine deposits of highly stratified beds of gravel, silt, sand, and clay, is associated with crude oil production. (*Ibid.*) The Tulare Formation is described as consisting of both saturated and unsaturated intervals: the upper Tulare is mostly unsaturated while the lower units are saturated with both oil and water. (*Ibid.*) Whether both intervals are present in the immediate site vicinity is unknown; groundwater flow in the site vicinity is likely to the east and southeast. (*Ibid.*)

Analysis suggests that the natural groundwater is connate water, that is, water derived at the time of deposition rather than from recharge. (Ex. 15, p. 332.) Total Dissolved Solids (TDS) levels are in excess of 10,000 mg/l. (*Ibid.*) TDS levels of produced water (water brought up through crude oil and natural gas pumping) are significantly lower than those of the groundwater.⁷¹ (*Ibid.*)

⁷⁰ The major surface water body within the project area is the Kern River, which is located approximately 16 miles southeast of the proposed project. (Ex. 15, p. 331.) The California Aqueduct is located approximately 16 miles east of the proposed site. (*Ibid.*)

⁷¹ Applicant estimates that TDS levels from oil production in the adjacent Midway-Sunset Oil Field are approximately one-fourth that of groundwater at the site or approximately 2,500 mg/l.

1. Soils

Soils found in the area of each project element are described in Table 1, which also defines the erosion potential of each soil type, slope range, and permeability. (Ex. 15, p. 332.)

SOIL & WATER RESOURCES Table 1
Soil Descriptions and Properties

Soil Name	% Slope	Erosion Hazard		Permeability	Project Elements
		Water	Wind		
Guijarral Gravelly Sandy Loam	2-9	Moderate	Low	Moderately rapid	Water Supply Pipeline
Kimberlina Fine Sandy Loam ¹	2-5	Moderate	Low	Moderately rapid	Power Plant Site, Construction Laydown, Water Supply Pipeline
Elkhills-Kettleman Association	15-50	Moderate	Moderate	Moderate	Transmission Line
Kettleman-Cochora Association, Moderately Steep	15-30	Moderate	Moderate to High	Moderate	Transmission Line
Olig Association, Steep	30-50	Moderate	Moderate	Moderate	Transmission Line
Welpport-Elkhills Association	9-30	Moderate to High	Low to High	Moderate to moderately rapid	Transmission Line
Buttonwillow Clay	0-2	Moderate	Low	Slow	Transmission Line
Elkhills Sandy Loam	9-50	Moderate to High	Low	Moderately rapid	Transmission Line
Elkhills-Torriorthents, Stratified, Complex	9-15	Moderate to High	Low	Moderate to Slow	Transmission Line
Elkhills-Torriorthents, Stratified, Eroded	15-50	Moderate to High	Low	Moderate	Transmission Line
Kettleman Gravelly Loam	15-50	Moderate	Low	Low to Moderate	Transmission Line
Kimberlina Fine Sandy Loam ²	0-2	Moderate	Low	Slow	Transmission Line
Kimberlina Sandy Loam	2-5	Moderate	Low	Moderate	Transmission Line
Kimberlina Sandy Loam	5-9	Moderate	Low	Moderate	Transmission Line
Lokern Clay	0-2	Moderate	Low	Very low	Transmission Line
Lokern Clay, Saline	0-2	Moderate	Low	Very low	Transmission Line
Panoche Clay Loam	0-2	High	Low	Moderate	Transmission Line
Panoche Clay Loam, Saline-Alkali	0-2	High	Low	Moderately slow	Transmission Line
Torriorthents, Stratified, Eroded-Elkhills Complex ²	9-50	Moderate to High	Low	Moderately Rapid	Transmission Line

Source: (Ex. 15, p. 332.)

The project is located at an approximate elevation of 1,835 feet, between two ephemeral drainages. (Ex. 15, p. 332.) The drainage channel to the north is located approximately 1,000 feet away from the proposed project site, and has a contributing drainage area of about 140 acres as it passes by the site. (*Ibid.*) The ridge between the channel and the project site is 40 to 50 feet above that channel bed, therefore potential flood discharges from that reach will not be a concern to the project site. (Ex. 15, p. 332-33.)

Crocker Canyon is located approximately 500 to 600 feet south of the project site. (Ex. 15, p. 333.) The drainage area contributing to Crocker Canyon as it passes by the site is about 6,900 acres or 10.8 square miles. (*Ibid.*) Channel slopes are 2.5 to 3 percent, which is hydraulically very steep. (*Ibid.*) The channel invert is approximately 30 to 40 feet below the north bank elevations between the project site and the channel. (*Ibid.*) An approximate discharge was calculated using a regional regression equation to determine the flooding potential from the canyon. Due to the high channel invert slopes, the flow depths will be supercritical⁷² with depths less than 10 feet and very high velocities of 14 to 15 feet per second. (*Ibid.*) Therefore, the flood stages will be 20 to 30 feet below the project site, including the construction parking and laydown area. (*Ibid.*)⁷³

Accelerated wind and water-induced erosion may result from earthmoving activities associated with construction of the proposed project. (Ex. 15, p. 335.) In addition, the San Joaquin Valley is a semi-arid environment, which may encounter storms of short duration and high intensity. (*Ibid.*) Such runoff events coupled with earth disturbing activities can result in increased erosion and sedimentation. (*Ibid.*)

Grading activities can affect natural watercourses in two ways: (1) when grading activities occur directly in waterways (linear crossings) and (2) indirectly by redirecting runoff patterns.

Soil sensitivity related to water and wind erosion ranges from high to low. (See Table 1, above.) Soils at the power plant site are slightly susceptible to water

⁷² Supercritical flow is a complex term that deals with fluid dynamics. It deals with inertial forces and the and the forces of gravity that act on a flow. Supercritical flow is fast moving, shallow water as opposed to subcritical flow, which is described as deep, slow-moving water.

⁷³ Applicant has indicated that the site is not within the 100-year floodplain of Crocker Canyon. (Ex. 15, p. 333.) The canyon is subject to flooding approximately one mile downstream from the project. (*Ibid.*)

erosion and moderately susceptible to wind erosion. (*Ibid.*) Upon removal of vegetative cover and the commencement of earthmoving activities, all soils are highly susceptible to erosion. (See **Biological Resources** Table 2.)

Construction activities will disturb 55 acres according to Applicant. (Ex. 15, p. 355.). The initial earthmoving activities at the proposed project site will include topsoil removal and the removal of an existing topsoil stockpile associated with Applicant's present 225 MW facility (*Ibid.*) The power plant site will require cut and fill operations that are necessary to create a level elevation of 1,834 feet above sea level. (*Ibid.*) Approximately 50,000 cubic yards of cut and 44,000 cubic yards of fill are needed to achieve final grade.⁷⁴ (*Ibid.*)

Due to the cut and fill balance, no soil will need to be imported to the site. (Ex. 15, p. 335.) Material used for backfill and compaction will be temporarily stockpiled south of the proposed site between West Crocker Springs Road and Crocker Canyon. (*Ibid.*) Excess topsoil will be used to construct a non-structural architectural berm in this area. (*Ibid.*) Some earth disturbance will be necessary for the 6+/- acres construction laydown (staging) area. (*Ibid.*)

The plant site will be leveled, compacted, covered with asphalt and/or aggregate and drainage, which will be limited to onsite sources due to interceptor channels around the site, will occur from west to east. (Ex. 15, p. 335.)

During project operation, physical erosion related to wind and water may continue to erode unprotected surfaces. (Ex. 15, p. 335.) Impervious surfaces can cause increased runoff that may eventually lead to accelerated erosion in unprotected areas. (*Ibid.*) Accordingly, Applicant has provided to Staff a draft Erosion Control and Stormwater Management Plan that identifies potential

⁷⁴ Applicant will provide all other pipeline services from the existing 225 MW facility, therefore all water pipework will be confined between the existing and proposed facilities. (Ex. 15, p. 336.)

temporary and permanent Best Management Practices. (Ex. 15, p. 336; see Conditions **SOILS & WATER 1 & 4.**)

Linear facilities are expected to create minimal temporary and permanent disturbances. (Ex. 15, p. 336.) For example, water will be delivered to the site via a 1.8-mile, 16-inch supply pipeline, which will come from a WKWD line that will join Applicant's existing facility's pipeline corridor.⁷⁵ (*Ibid.*) The line will traverse areas previously disturbed via oil field operations with slopes ranging from 2 percent to 9 percent. (*Ibid.*) Soil disturbance is expected to be minimal for the water supply line because the line will be constructed aboveground.

There will be one 19 mile-long tubular steel tower transmission line associated with the proposed project.⁷⁶ The transmission line route is proposed in areas of existing transmission line corridors and access roads. (*Ibid.*) In fact, the proposed route parallels an existing transmission line along its entire length; therefore, no new access roads are needed for the construction and maintenance of the proposed transmission lines. (*Ibid.*)

All transmission structures to be constructed along the transmission route will utilize 0.156 acres for permanent operation. (Ex. 15, p. 336.) The proposed transmission line will cross the Buena Vista Creek, California Aqueduct, Kern River Flood Canal, Mirasol ditch, and several ephemeral drainages.⁷⁷ (*Ibid.*) The water supply pipeline will not disturb any watercourses along its route. (*Ibid.*) All other linear facilities will be confined to the proposed site and Applicant's existing 225 MW facility. (*Ibid.*)

⁷⁶ In 1988, the CEC approved an amendment regarding the Transmission Line Engineering Conditions of Certification Nos. 1b and 4h for the MSCP. (Ex. 15, p. 336.) Because of this order, no alternate transmission line is included in the AFC. (*Ibid.*)

⁷⁷ Watercourses affected by transmission line construction will require a Streambed Alteration Agreement from the California Department of Fish and Game. (Ex. 15, p. 336; see **Biological Resources** section, *supra.*)

The State Regional Water Quality Control Board (SRWQCB) has determined that the Kern River Flood Canal, California Aqueduct, and all other drainages are regulated under the Clean Water Act. (*Ibid.*) Transmission line construction and operation will not impact any channel or floodplain; therefore, Section 401 or 404 Permits under the Clean Water Act will not be required. (Ex. 15, p. 336.)

2. Water Supply

WKWD, the water supplier, covers approximately 250 square miles of western Kern County, and serves a population of approximately 25,000 people, residing in the Cities of Taft and Maricopa, and a number of unincorporated communities. (Ex. 15, p. 333.) The district also has approximately 400 connections for industrial users, and it obtains its water supply from local groundwater and the SWP (SWP). (*Ibid.*)

WKWD, in conjunction with the Buena Vista Water Storage District (BVWSD), uses State Water Project (SWP)⁷⁸ water for its groundwater banking and recharge program. (Ex. 15, p. 333.) From 1986 to 1996, WKWD on average received 19,587-acre feet of SWP water. (*Ibid.*; see **Soil & Water Resources Table 2** below.)

⁷⁸ The availability of SWP supplies is variable and subject to cutbacks during drought years. (Ex. 15, p. 334.) The district attempts each year to obtain the maximum amount of SWP water available and is usually able to bank all of its SWP water through the banking agreement with BVWSD. (*Ibid.*; see Table 2, below)

SOIL & WATER RESOURCES Table 2
West Kern Water District Water Supply (acre-feet year AFY)

Year	SWP	Water Purchased	Water Sold	Water In Bank
1990-91	24,348	29,825	10,948	155,488
1991-92	10,464	12,289	14,755	155,408
1992-93	9,496	14,806	12,335	160,137
1993-94	19,523	27,235	12,317	174,484
1994-95	19,838	30,353	11,334	194,956
1995-96	25,000	25,000	13,239	216,503
1996-97	25,000	25,000	13,843	229,133
1997-98	25,000	25,000	13,385	216,556
Total	108,705	139,508	74,928	-
Average	18,118	23,251	12,488	13,165

Source: (Ex. 15, p. 344.)

WKWD is entitled to 25,000-AFY of SWP water through a contract with the Kern County Water Agency. (Ex. 15, p. 334.) In addition, 10,000-AFY of SWP water, known as interruptible water, is also available to the district during wet years. (*Ibid.*)

WKWD maintains its banked groundwater through an in-lieu groundwater banking and pumping program with the Buena Vista Water Storage District (BVWSD). (Ex. 15, p. 334.) BVWSD obtains its water supply from groundwater, the Kern River and the SWP both as a contracting entity and through the banking agreement with WKWD. (*Ibid.*)

As part of the agreement with WKWD, BVWSD delivers WKWD's SWP water from the California Aqueduct to its landowners instead of pumping local groundwater. (Ex. 15, p. 334.) WKWD then can pump or bank a volume of groundwater equivalent to the amount of SWP water supplied to BVWSD. (*Ibid.*)

WKWD's well field is located approximately 15 miles northeast of Taft in the Tupman area. (Ex. 15, p. 334.) Total peak production capacity of the six active wells is 99 acre-feet per day, but maximum daily usage averages approximately 41.5 acre-feet per day. (*Ibid.*) The district has another agreement with the BVWSD to pump 3,000 acre-feet of groundwater per year. (*Ibid.*) This water cannot be banked and therefore the WKWD uses this water first. (*Ibid.*)

WKWD must recharge the basin for the amounts pumped in excess of 3,000-AFY. (Ex. 15, p. 334.) Both WKWD and the BVWSD recharge the basin through the use of spreading ponds and the Kern River Channel near the WKWD s wellfield. (*Ibid.*) Average basin recharge between 1979 and 1996 has been 11,250 acre-feet per year.⁷⁹ (*Ibid.*)

On an average annual basis, the proposed project will require approximately 3,260-acre feet of water from the WKWD. (Ex. 15, p. 337.) Applicant, however, intends to treat approximately 800-acre feet of cooling tower blowdown from the proposed project and use this water at its existing 225 MW facility. (*Ibid.*) Therefore, new water demand for the proposed project, taking the displacement of 800 acre-feet at the existing facility into account, is approximately 2,460-acre feet per year.⁸⁰ (*Ibid.*)

The WKWD will supply raw water to the proposed project for steam cycle cooling, combustion turbine evaporative cooling, firewater, and miscellaneous utility uses.⁸¹ (Ex. 15, p. 337.) A new 16 diameter pipeline will be constructed between WKWD s line number 303 and the project site. (*Ibid.*) Three 50 percent capacity pumps will be installed at the tie-in location.⁸² (*Ibid.*)

⁷⁹ Groundwater levels approximately the WKWD s wellfield have varied greatly over the last five years due to changes in production and due to recharge. (Ex. 15, p. 335.) The groundwater pumped by the district from their wellfield is typically a sodium bicarbonate water with low TDS levels; it generally meets drinking water standards. (*Ibid.*)

⁸⁰ The estimate of project estimate is based on an average consumption with an average annual temperature of 65°F and 50 percent relative humidity at a 90 percent capacity factor. (Ex. 15, p. 337.)

⁸¹ Water uses include cooling tower makeup, gas turbine evaporative cooler makeup, boilerfeed water makeup, utility water, potable water, and miscellaneous uses. (Ex. 15, p. 337.)

⁸² The new 1.8-mile water line will follow an existing pipe corridor that was constructed as part of Applicant s existing 225 MW facility. (Ex. 15, p. 337.) The new water line will be designed to deliver a maximum flow of 3,000 gpm. (*Ibid.*)

Water storage on site will make use of the Applicant's existing 500,000-gallon water storage tank. (Ex. 15, p. 337.) The tank will act as a buffer to be drawn down in the daytime while being filled at night. (*Ibid.*) The cooling tower basin will serve as the firewater reservoir for the proposed project, thus eliminating the need for a separate firewater storage tank. (*Ibid.*)

The proposed project's addition will increase WKWD customer deliveries from approximately 13,000-AFY to approximately 15,000-AFY. (Ex. 15, p. 337.) This is considerably less than the WKWD's annual SWP entitlement of 25,000-acre feet. (*Ibid.*) Between 1986 and 1996, WKWD received on average 19,587 acre feet of SWP water, which the district delivered to BVWSD for groundwater banking. (*Ibid.*)

Incorrect disposal of wastewater or inadvertent chemical spills can degrade soil, surface water and groundwater. (Ex. 15, p. 338.) Applicant plans to dispose sanitary waste to a septic system and leachfield. (*Ibid.*) Cooling tower blowdown, heat recovery steam generator (HRSG) boiler blowdown, combustion turbine evaporative cooler blowdown and non-restricted process reject waters will be used in Applicant's existing 225 MW facility. (*Ibid.*)

Applicant will route waste streams from the proposed facility to the Aera Energy Victory Water Treatment Plant, and, in turn, replace fresh and/or other boiler feedwater. (Ex. 15, p. 338; see Table 3 below.) The Victory Water Plant is located less than 1 mile east of the proposed facility. (*Ibid.*) The water will be filtered, softened, and returned to Applicant's existing facility as boiler feedwater to its existing HRSGs. (*Ibid.*) Since these wastewater streams will be treated and reclaimed for use in Applicant's existing facility, there are no wastewater effluent streams. (*Ibid.*) Washdown water will be collected and sent to a new oily water separator prior to discharge to the storm retention basin. (*Ibid.*)

Soil & Water Resources Table 3
Wastewater Discharges

Waste Stream	Average (gpm)	Peak (gpm)
Cooling Tower Blowdown	368	537
HRSG Blowdown	13	14
Evaporative Cooler Blowdown	6	21
Inlet filter Backwash	76	84
Discharge to Retention Basin	0.7	n/a
Misc. Utility Water to Ret. Basin	0.5	0.5
GT offline water wash (gal/yr)	<100,000	n/a

Source: (Ex. 15, p. 328.)

3. Cumulative Impacts

The WKWD has sufficient SWP entitlement and banked groundwater supply to meet water demand for the life of the proposed project. (Ex. 15, p. 339.) Since 1990, water demand for the WKWD has averaged approximately 13,200-acre feet of water per year. (Ex. 15, p. 337.) Water demand for the district in water year 1995-96 was 13,239 acre-feet. (*Ibid.*) New increases in water supply for WKWD include La Paloma (99-AFC-2), Sunrise (99-AFC-4), and Elk Hills (99-AFC-1), all recently approved by the Energy Commission. (*Ibid.*)

Once operational, La Paloma will require 5,500-acre feet of water annually. (Ex. 15, p. 337.) The district will provide this water to La Paloma through a dedicated diversion in the California Aqueduct. (*Ibid.*) Elk Hills will have a water requirement of approximately 3,179-acre feet, which will be met by WKWD from its groundwater storage rights in the Tupman area. (*Ibid.*) Sunrise will require an estimated 278-acre feet per year of WKWD water. (*Ibid.*) Providing water to these facilities will represent an increase of approximately 78 percent in the district's water demand. (*Ibid.*)

Water demand in the WKWD has generally declined over the last 25 years. (Ex. 15, pp. 337-38.) WKWD peak water demand during this time occurred in 1983-84 when 17,403-acre-feet of water was sold. (Ex. 15, p. 338.) WKWD anticipates that within its service boundary:

- there will be minimal additional demand in the future for its water from oil producers ; and
- population growth will continue to be low. (*Ibid.*)

Given the foregoing facts, its entitlement to SWP water, and its pool of banked groundwater, water supply to the proposed project will neither adversely effect WKWD s ability to supply existing customers nor curtail its ability to meet future demand. In addition, we conclude that given WKWD s large banked groundwater supply and the flexibility to buy water from other sources, those new projects considered above will not adversely affect WKWD or its other customers.

FINDINGS AND CONCLUSIONS

Based upon the evidence of record before us, we find and conclude as follows:

1. Soils in the project area are susceptible to wind and water erosion.
2. The transmission line and water supply line, respectively, for the proposed project will be located along an existing right-of-way, and follow a current corridor (on existing pipe supports).
3. Applicant shall provide a final Streambed Alteration Agreement (SAA) from the California Department of Fish and Game, prior to the beginning of project construction.
4. Applicant has provided a draft Erosion Control and Stormwater Management Plan that will serve as the Stormwater pollution prevention plan as required under the General Construction Stormwater Permit issued by the State Water Resources Control Board.

5. Transmission line construction and operation will not impact any channel or floodplain; therefore, Section 401 or 404 Permits under the Clean Water Act will not be required.
6. The Conditions of Certification below, in conjunction with the SAA and the will ensure that soil and water erosion does not create significant adverse environmental impacts.
7. The Midway Sunset Power Project will use WKWD groundwater and wet cooling technology in the operation of the power plant.
8. The WKWD has sufficient water to meet project needs.

CONDITIONS OF CERTIFICATION

SOILS&WATER 1: Prior to ground disturbance, the project owner shall develop and implement Storm-water Pollution Prevention Plan (SWPPP). The project owner shall identify chemicals and areas of potential spill exposure and explain Best Management Practices for storage, handling, containment, and possible cleanup. A contingency plan shall be developed along with a qualified contact for spill control and management.

Verification: Thirty days prior to the start of any ground disturbance, the project owner shall submit a copy of the SWPPP to the Energy Commission Compliance Project Manager (CPM) for review and approval. No ground disturbance may commence until the SWPPP has been approved by the CPM.

SOILS & WATER-2: Prior to beginning ground disturbance the project owner shall submit an Erosion and Sediment (E&S) Control and Re-vegetation Plan for CPM approval. The plan shall contain all the elements of the draft plan plus all changes recommended by the CPM.

Verification: Thirty days prior to any ground disturbance, the project owner shall submit for approval an Erosion Control and Re-vegetation Plan to the CPM.

SOIL&WATER 3: Prior to any ground disturbance, the project owner shall obtain a grading permit from the Kern County Building Department.

Verification: Thirty days prior to any ground disturbance, the project owner shall submit for approval, one set of plans/specifications and other supporting data specified in the Engineered Grading Requirements of the Kern County Grading Code to the CPM. Upon CPM approval, the project owner shall submit a building permit application and required plans to the Kern County Building Department.

SOIL&WATER 4: Prior to commercial operation, the project owner shall develop and implement a SWPPP to control storm-water runoff to comply with the requirements of the General Storm-water NPDES Permit for Industrial Activities.

Verification: Thirty days prior to commercial operation, the project owner shall submit to the CPM for approval, a SWPPP that addresses the control of storm-water runoff during project operation. The project owner shall implement the approved SWPPP.

SOIL&WATER 5: The project owner shall obtain the Waste Discharge Requirements from the Central Valley Regional Water Quality Control Board for the retention pond prior to operation of Western MSCC project. The project owner shall comply with all provisions of the Waste Discharge Requirement. The project owner shall notify the CPM of any proposed changes to this permit, including any application for permit renewal.

Verification: Within 30 days following receipt of the Waste Discharge Requirement from the Central Valley Regional Water Quality Control Board, the project owner shall submit a copy of the permit to the CPM. The project owner shall submit to the CPM in the Annual Compliance Report, a copy of the Annual Monitoring Report submitted to the Central Valley Regional Water Quality Control Board. The project owner shall notify the CPM in writing of any changes to and/or renewal of this permit.

E. WASTE MANAGEMENT

The project will generate hazardous and nonhazardous wastes during construction and operation. This topic reviews Applicant's waste management plans to reduce the risks and environmental impacts associated with the handling, storing, and disposing of project-related wastes.

Federal and state laws regulate the management of hazardous waste. Hazardous waste generators must obtain EPA identification numbers, and use only permitted treatment, storage, and disposal facilities. Registered hazardous waste transporters must handle the transfer of hazardous waste to disposal facilities. This portion of the Decision assesses whether this will result in any potential environmental impact, and examines whether:

- wastes generated during construction and operation will be managed in an environmentally safe manner;
- disposal of wastes will result in significant adverse impacts to existing waste disposal facilities; and
- waste management practices will comply with all applicable LORS standards. (Ex. 15, p. 131.)

SUMMARY OF THE EVIDENCE

1. Soil and Groundwater Contamination

To determine the potential for soil or groundwater contamination at the site and along the transmission and water pipeline routes, Applicant performed a Phase I Environmental Site Assessment (ESA).⁸³ (Exs. 15, p. 133; 1, Appendix Q.)

⁸³ The ESA was performed in accordance with American Society for Testing and Materials practice E 1527-97. (Ex. 15, p. 133.) The ESA reported that no underground storage tank sites or other mapped sites were found in the search of available government records either on the subject property or within the search radius around the subject property (Exs. 15, p. 133; 1, p. 15.)

The ESA included a:

- review of current and past uses of the property;
- site reconnaissance to assess evidence of current and/or past use or storage of toxic or hazardous material; visible soil discoloration; aboveground or underground storage tanks; electrical transformers containing polychlorinated biphenyls; and drums, barrels and other storage containers;
- visual review of adjacent properties and facilities to assess their potential to adversely impact the site; and
- review of readily available federal and state agency lists of known or potential hazardous waste sites or landfills, and sites currently under investigation for environmental violations in the site area. (*Ibid.*)

Applicant's existing facility is adjacent to its proposed site on the east. (Ex. 15, p. 133.) East of the cogeneration plant lies the Midway Sunset Oil Field. (*Ibid.*) The remainder of the property is used for livestock grazing or is undeveloped. (*Ibid.*) DOGGR⁸⁴ data indicates that no producing or abandoned wells are located on the property, although producing oil wells and related facilities are located to the east of the existing cogeneration plant.

A site reconnaissance was performed to obtain information indicating the likelihood of recognized environmental conditions concerning the proposed site. (Ex. 15, p. 133-34.) Included was an inspection for:

- hazardous substances,
- solid wastes, and
- stains, and odors.

⁸⁴ The acronym applies to the California Department of Conservation, Division of Oil, Gas and Geothermal Resources.

The reconnaissance found no obvious environmental liabilities or threats to the property from adjacent properties or the surrounding area. (Exs. 15, p. 134; 1, p. 20.).

The ESA concluded that no areas of environmental concern were identified within the proposed site or associated water supply line and transmission line corridors and that no additional investigation is required. (Exs. 15, p. 134; 1, p. 21.) Nevertheless, we have provided for a certified environmental professional to be available to provide guidance in the event that such soil is encountered during project construction. (Ex. 15, p. 134; see Condition **WASTE-4**).

2. Construction

Under normal operating conditions, the proposed project will generate both non-hazardous and hazardous wastes. (Ex. 15, p. 134.) Non-hazardous wastes include debris requiring removal during site grading and excavation, excess concrete, lumber, scrap metal, insulation, empty chemical containers, and miscellaneous materials such as paper, glass, and plastic from packaging materials. (*Ibid.*) Applicant estimates that up to 500 tons of solid wastes will be generated during construction. (Exs. 15, p. 134; 1 p. 5.14-5.)

Recycling of scrap metal, copper wire, empty containers, and absorbent materials will total about 20 cubic yards every three weeks (Exs. 15, p. 134; 1 p. 5.14-5.) Wastes that cannot be recycled will be disposed of at a Class III (non-hazardous) landfill. (*Ibid.*)

Relatively small quantities of hazardous wastes will be generated from construction activities and include waste oil and grease, paint, spent solvent, lube oil, lead acid batteries, and cleanup materials from spills of hazardous substances. (Ex. 15, p. 134.) These wastes will be temporarily stored onsite in

containers prior to transportation (via a licensed carrier) to a recycling or disposal facility. (Exs. 15, p. 134; 1, p. 5.14-6,7; see *also* Table 5.14-2.)⁸⁵

We conclude that that there are not likely to be significant impacts due to managing wastes from facility construction because all such wastes will be handled in conformance with applicable LORS and in an environmentally safe manner.

3. Operation

Under normal operating conditions, the proposed project will generate both non-hazardous and hazardous wastes. (Ex. 15, p. 135.) Non-hazardous wastes generated during plant operation include trash, office wastes, empty containers, broken or used parts, used packing material, and used filters. (*Ibid.*) On a daily basis, the quantities of such wastes generated from gas-fired facilities such as the proposed project are typically minor, on the order of a few cubic yards or less, with some of the material being recyclable. (*Ibid.*) Non-hazardous waste will be recycled where practical and the remainder disposed to a Class III (non-hazardous) landfill. (Exs. 15, p. 135; 1 5.14-6; see *also* Table 5.14-3.)

Hazardous wastes generated during routine project operation include cleaning solutions, spent air pollution control catalyst, used lubricating oil, used solvents, waste paint and thinner, lead-acid batteries, contaminated cleanup materials, and empty chemical containers. (Exs. 15, p. 135; 1, Table 5.14-2.) Certain hazardous wastes can be recycled, such as used oil, catalyst, and batteries. (*Ibid.*) Spent air pollution control catalyst is typically returned to the manufacturer for reclamation or disposal, and used oil is collected by a licensed oil recycler.

⁸⁵ Additional wastes could be generated if contaminated soils are encountered during site preparation or linear facility construction. (Ex. 15, p. 134.) However, the Phase I ESA did not find any evidence of recognized environmental conditions on the site or linear routes, thus reducing the likelihood that any will be found. (*Ibid.*)

(*Ibid.*) All hazardous wastes will be collected by licensed carriers to a recycling or Class I treatment, storage, or disposal facility. (Exs. 15, p. 135; 1, 5.14-13.)

Used containers of hazardous substances, such as chemical containers or oil filters may be classified as hazardous wastes. (Ex. 15, p. 135.) However, if managed according to certain regulatory guidelines, such containers may be managed as non-hazardous. (*Ibid.*)

Accordingly, we conclude that there will be no significant impacts due to managing wastes from facility operation because all such wastes will be handled in conformance with applicable LORS and in an environmentally safe manner.

4. Potential Impacts on Waste Disposal Facilities

Non-hazardous wastes from project construction and operation will be disposed of at the Taft Class III landfill owned and operated by the Kern County Waste Management Department. (Exs. 15, p. 135; 1 p. 5.14-6.) The Taft landfill currently has a use rate of about 67 tons per day, and a remaining capacity of about 6.7 million cubic yards. (*Ibid.*) Its currently estimated remaining life is thus about 150 years.⁸⁶ (*Ibid.*)

Moreover, Applicant has named four additional Kern County landfills, which could receive project wastes. (Exs. 15, p. 135-36; 1, Table 5.14-1.) Of these, the Arvin landfill only has a remaining life of about one to three years, and the Lost Hills landfill has a low use rate of about ten tons per day. (*Ibid.*) The two remaining landfills are Bena and Shafter-Wasco. (*Ibid.*) Bena, currently permitted at Phase I, is scheduled to close in about 2004; additional phases operational until 2033, however, will provide about 41 million cubic yards of new capacity. (*Ibid.*) Shafter-Wasco has a remaining capacity of over eight million cubic yards, with a

⁸⁶ Although Taft may become a regional landfill with an increased rate of use and a correspondingly shorter life, it will remain adequate for project wastes from the proposed project. (Ex. 15, p. 135.)

remaining life of 20 years. (*Ibid.*) Cumulatively, the landfills have remaining disposal of over 49 million cubic yards and operational lifetimes adequate for the proposed project.⁸⁷ (Ex. 15, p. 136.) Thus, we conclude that nonhazardous wastes from the proposed project would not meaningfully impact landfill operations.

Three Class I landfills in California are permitted to accept hazardous waste as follows:

- Chemical Waste Management's Kettleman Hills facility;
- Safety-Kleen Environmental Service's landfill in Buttonwillow, Kern County; and
- Westmoreland's facility in Imperial County. (Ex. 15, p. 136.)

In total, there is in excess of twenty million cubic yards, or 90 years lifetime, of remaining hazardous waste disposal capacity in California. (Ex. 15, p. 136.) Much of the hazardous waste generated during facility construction and operation will be recycled, such as used oil and spent catalyst. (*Ibid.*) We conclude that even without recycling, the generation of hazardous waste from this facility would be minor and would not significantly impact the capacity or remaining life of any of California's Class I landfills. (*Ibid.*)

5. Cumulative Impacts and Closure

Cumulative waste management impacts include those associated with construction and operation of similar projects, including La Paloma (98-AFC-2), Sunrise (98-AFC-4) and Elk Hills (99-AFC-1). (Ex. 15, p. 136.) As with construction and operation of the proposed project, relatively minor amounts of wastes will be generated during construction and operation of each of these

⁸⁷ The amount of nonhazardous wastes generated during project construction and operation is insignificant relative to current disposal capacity, even when discounting the effects of recycling, on the total amount of wastes destined for land filling. (Ex. 15, p. 136.)

projects. (*Ibid.*) Due to the insignificant impacts on individual disposal facilities combined with the availability of regional landfills as well as the potential for future landfill expansion, we conclude that cumulative impacts will be insignificant for both hazardous and non-hazardous wastes.

During any type of facility closure, the primary waste management related concern is that project wastes not pose any potentially significant problem to the public, workers, or the environment. (Ex. 15, p. 136.) We believe that the Conditions of Certification set forth in our General Conditions section will adequately address waste management issues related to all types of closure whether temporary or permanent. (Ex. 15, p. 136-37.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, we make the following findings and conclusions:

1. The project will generate hazardous and non-hazardous wastes during construction and operation.
2. Excavation activities may expose construction workers to hazardous metals or organics in the soil.
3. Under Applicant's waste management plan, the project will recycle hazardous and nonhazardous wastes to the extent possible and in compliance with applicable LORS.
4. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to one of the three California Class I landfills.
5. Nonhazardous wastes that cannot be recycled will be disposed at nearby Class III landfills.
6. The Midway Sunset Power Project, either alone or in combination with the four other potential power plant projects in the same area, will not create quantities of hazardous or nonhazardous construction or operational

wastes sufficient to create a significant adverse impact upon available Class I or Class III landfills.

7. Applicant's stormwater management plan will control stormwater runoff in conformance with applicable LORS.
8. Due to the availability of hazardous and nonhazardous waste disposal facilities, and the relatively inconsequential amount of waste generated by the project, potential impacts to existing facilities will be insignificant.
9. With implementation of the Conditions of Certification listed below, the project will conform with all applicable LORS relating to waste management as identified in the pertinent portions of APPENDIX A of this Decision.

We therefore conclude that the disposal of hazardous and/or non-hazardous wastes generated by construction and operation of the Midway Sunset project will not create any significant adverse direct, indirect, or cumulative impacts.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner, upon becoming aware of any waste management-related enforcement action taken or proposed to be taken against it, or against any waste hauler or disposal facility or treatment operator with which it contracts, shall notify the CPM.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action.

WASTE-2 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CPM a waste management plan, including revisions based on the CPM's comments, for all wastes generated during construction and operation of the facility. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and

- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 60 days prior to the start of construction, or a lesser time as mutually agreed upon by the project owner and the CPM, the project owner shall submit the construction waste management plan to the CPM for review. The operation waste management plan shall be submitted no less than 60 days prior to the start of project operation, or a lesser time as mutually agreed upon by the project owner and CPM. The project owner shall submit any required revisions within 30 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-3 The project owner shall have an environmental professional available for consultation during soil excavation and grading activities. The environmental professional shall meet the qualifications of such as defined by the American Society for Testing and Materials designation E 1527-97 Standard Practice for Phase I Environmental Site Assessments as evidenced by one of the following or similar credentials: (1) Certified Industrial Hygienist with experience in worker exposure monitoring, (2) Qualified Environmental Professional certification, (3) Registered Environmental Assessor II, or (4) Registered Professional Engineer with experience in remedial investigation and feasibility studies.

Verification: At least 30 days prior to the start of construction, the project owner shall submit the qualifications and experience of the environmental professional to the CPM for approval.

WASTE-4 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, or other signs, the environmental professional shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action, prior to any further construction activity at that location.

Verification: The project owner shall submit any reports filed by the environmental professional to the CPM within five days of their receipt.

If, in the opinion of the environmental professional, significant re-mediation is required, the project owner shall contact representatives of the Kern County Department of Environmental Health and the Sacramento Regional Office of the California Department of Toxic Substances Control for guidance and possible oversight.

VIII. LOCAL IMPACT ASSESSMENT

All aspects of a power plant project effect, in differing degrees, the community in which it is located. The effect of the various elements of a project upon the local area varies from case to case depending upon the nature and the extent of the community and of the associated impacts. In the present instance, we believe the technical elements discussed in this portion of our Decision are those constituting the most likely areas of potential local concern.

A. LAND USE

The discussion of land use impacts for the Midway Sunset Power Project focuses on two main issues:

- the proposed project s plan to conform with local land use plans, ordinances, and policies; and
- its potential to have direct, indirect, and cumulative conflicts with existing and planned uses.

In general, a power plant project can be incompatible with existing or planned land uses when it creates unmitigated noise, dust, public health hazards or nuisances, traffic, or visual impacts, or when it significantly restricts existing or future uses.

SUMMARY OF THE EVIDENCE

The proposed Midway Sunset Power Project will be adjacent to Applicant s existing 225 MW cogeneration facility. (Ex. 15, p. 149-50.) The proposed site is about three miles west of State Route 33, six miles northwest of the community of Fellows, and two and one-half miles southwest of Derby Acres. (*Ibid.*)

Land Use

There are no residences, parks, recreational, educational, religious, health-care facilities or commercial uses, on the project site or within a five-mile radius of the site. (Ex. 15, p. 150.)

The following tables indicate Kern County's land use designations, existing land uses of the proposed project site, and the transmission/water supply line corridors, and zoning designations within the affected land use designations.

Summarized below are the existing Kern County General Plan land use designations:

LAND USE Table 1
General Plan Land Use Designations within the Study Area

LOCATION OR LINEAR FACILITY	Land Use Designation
Midway Sunset Power Project	Mineral and Petroleum
Route 1 (R1) Transmission Line	Mineral and Petroleum/ Extensive Agriculture/ Intensive Agriculture
Route 2 (R2) Water Supply Pipeline	Mineral and Petroleum

Source: (Ex. 15, p. 145.)

The project site is designated Mineral and Petroleum, and the project is a compatible use with the existing land use designation. (Ex. 15 p. 150; Table 1, & 2 below.)

The existing land uses for the facility are represented below in **LAND USE Table 2**.

LAND USE Table 2
Existing Land Uses within the Study Area

LOCATION OR LINEAR FACILITY	EXISTING LAND USES
Midway Sunset Power Project	Undeveloped Oil Field
Route 1 (R1) Transmission Line	Undeveloped/Oil Field/ BLM Lands/CDFG Lands ⁸⁸ / California Aqueduct/Levee/ Flood Canal/Agriculture
Route 2 (R2) Water Supply Pipeline	Undeveloped/Oil Field/ BLM Lands

Source: (Ex. 15, p. 145.)

The Kern County zoning designations affected by Midway Sunset are as follows:

LAND USE Table 3

LOCATION OR LINEAR FACILITY	ZONING DESIGNATIONS
Midway Sunset Power Project	Exclusive Agriculture (A)
Route 1 (R1) Transmission Line	Exclusive Agriculture (A)/ Limited Agriculture (A-1)
Route 2 (R2) Water Supply Pipeline	Exclusive Agriculture (A)

Source: (Ex. 159, p. 149.)

Each of the foregoing zoning designations allows the power plant and its appurtenant facilities as permissible uses. (Ex. 15, p. 150.) The site is zoned Exclusive Agriculture, and power plants are a conditional use in this zone.⁸⁹ (*Ibid.*) Staff, however, has required Applicant to comply with the relevant provisions of the Kern County Zoning Ordinance. (Ex. 15, p. 120; see Condition **LAND-1.**)

In addition, Applicant has proposed to create a thirty-acre parcel for development of the project. (Ex. 15, p. 150.) The record demonstrates that Applicant has complied with the provisions of the Subdivision Map Act, and the Kern County

⁸⁸ The acronyms are for, respectively, the U.S. Bureau of Land Management, and the California Department of Fish and Game.

⁸⁹ While the County would normally require a conditional use permit for this type of project, the Commission's certification supersedes this requirement. (Ex. 15, p. 153.)

Planning Department has approved the application for a lot line adjustment. (*Ibid.*)

Linear Facilities

Transmission lines are permitted by right in all zones and require no discretionary permits from the county under the Kern County Zoning Ordinance. (Ex. 15, pp. 150; 151-52.) Transmission Line Route 1 passes through land zoned A-1 (Limited Agriculture) and A (Exclusive Agriculture) and will parallel the entire length of the existing Midway Sunset 230 kV line. (Ex. 15, p. 150.) The existing land uses for linear facilities are represented above in **LAND USE Table 2**.

The towns of McKittrick and Buttonwillow are located 0.6-mile west and 0.5 mile north, respectively, of the transmission line at milepost 18.1. (Ex. 15, p. 150.) Sensitive receptors within one-half mile of the Route 1 corridor include residences, Buttonwillow Park, row crops,⁹⁰ McKittrick School and Buttonwillow Union School are located 0.8 mile west and northwest, respectively of the Route 1 corridor. (*Ibid.*)

The Water Supply line, Route 2, passes through land zoned A (Exclusive Agriculture) and will use the same corridor that now exists for Applicant s existing facility s steam and water lines. (Ex. 15, p. 150.) Under the Kern County Zoning Ordinance, underground facilities for gas and water lines are permitted by right in all zones, and require no discretionary permits from the county (Kern County Zoning Ordinance Section 19.08.090). (*Ibid.*) The existing land uses for linear facilities are represented above in **LAND USE Table 2**.

⁹⁰ Route 1 will cross irrigated row-crops from milepost 14.8 to 19.0. (Ex. 15, p. 151.) This land is considered Prime Agricultural Land as defined by the California Department of Conservation (DOC). (*Ibid.*) No other agricultural lands affected by construction of the project and its linear components are considered Prime, Unique, or Farmland of Statewide Importance as defined by the DOC. (*Ibid.*) Route 1 will parallel the entire length of Applicant s existing transmission line, and it is a land use permitted by right (requiring no discretionary permits from the county). Accordingly, we do not consider Route 1 to be an adverse or significant impact to agricultural use.

Cumulative Impacts and Closure

In general, Energy Commission staff considers conversion of agricultural lands to non-agricultural uses, and changes in land use patterns to be significant cumulative impacts. (Ex. 15, p. 151) Existing land use in western Kern County is characterized by oil fields and natural resource development, with land designated and zoned for agricultural use, grazing, resource extraction, and energy development uses. (*Ibid.*)

In addition to the proposed project, other CEC approved regional projects include La Paloma (98-AFC-2), Sunrise, (98-AFC-4), Elk Hills (99-AFC-1), and Pastoria (99-AFC-7). Because these projects are located within existing oil fields, no conversion of agricultural lands or changes in land use patterns are expected to occur as a result of project construction and operation. (Ex. 15, p. 151.) We find, therefore, that La Paloma, Elk Hills, Sunrise, Pastoria, and Midway Sunset will not have a significant adverse cumulative impact on agricultural land use and existing land use patterns in western Kern County.

Kern County has no specific provisions regarding the potential closure and restoration of the project site. (Ex. 15, p. 152.) The County has requested that it be given an opportunity to review the closure plan required in the Compliance and Closure portion of this Decision. (*Ibid.*) Accordingly, the county's review is specified in another portion of this Decision. (See Facility Design Condition of Certification **GEN-9**.)

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The Midway Sunset Power Project and its related facilities are permissible uses under the applicable Kern County zoning designations.
2. Construction and operation of the Midway Sunset Power Project will not create conflicts with existing or planned land uses in the project vicinity.
3. No significant or adverse impact will result to agricultural or residential property affected by the Midway Sunset Power Project.
4. The Conditions of Certification below ensure that the project will be constructed and operated in compliance with the applicable LORS relating to land use as identified in the pertinent portion of Appendix A of this Decision.

We therefore conclude that the Midway Sunset Power Project will not create any significant direct or indirect adverse land use impacts.

CONDITION OF CERTIFICATION

LAND-1 Prior to the issuance of building or grading permits, the project owner shall submit a site development plan for the project to Kern County for their review and comment, and to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The site development plan shall comply with all applicable provisions of Chapters 19.12, 19.86, and 19.82 of the Kern County Zoning Ordinance. The project owner shall provide a letter of comment from the Kern County Planning Director stating that the project is consistent with the provisions of the Kern County General Plan and Zoning Ordinance.

Protocol: The site development plan shall include a landscaping plan. If the CPM notifies the project owner that revisions of the site development plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan. The landscaping shall not be planted before the plan is

approved. The project owner shall notify the CPM when the landscaping has been planted and is ready for inspection.

Verification: At least 60 days prior to the start of any site mobilization the project owner shall submit the proposed site development plan and landscape plan and a copy of the letter of comment from the Kern County Planning Director to the CPM for review and approval. The project owner shall submit any required revisions within 30 days of notification by the CPM. The project owner shall complete installation of the landscaping by the end of the first planting season following first electricity generation. The project owner shall notify the CPM within seven days after the landscaping is planted that the landscaping is ready for inspection.

B. NOISE

The construction and operation of any power plant creates noise, or unwanted sound. Several factors combine to determine whether a proposed project will meet applicable noise control laws and ordinances or whether it will create significant adverse impacts. These factors include:

- the character and the loudness of the noise,
- the times of day or night during which it is produced, and
- the proximity of the facility to sensitive receptors.

In this portion of the Decision, we examine the likely noise impacts from the Midway Sunset Power Project and the sufficiency of measures proposed to control them.

SUMMARY OF THE EVIDENCE

The Midway Sunset Power Project site is adjacent to and west of Applicant's existing 225 MW cogeneration facility in western Kern County, at the foot of Crocker Canyon. (Ex. 15, p. 184.) The proposed site is zoned for Exclusive Agriculture (A), and is authorized under the Kern County General Plan land use designations as Mineral Petroleum Use (compatible with intensive agriculture). (*Ibid.*) Existing land uses in the study area consist of a producing oil and gas field and undeveloped lands. (*Ibid.*) The heavily used oil and gas production field, which is operated by Aera Energy, borders the proposed plant site to the east; undeveloped lands border the site on the west, north, and south. (*Ibid.*)

No sensitive receptors are located within the one-mile study area of the proposed Midway Sunset site; the closest sensitive receptors are approximately two miles from the proposed site.⁹¹ (Ex. 15, p. 184.) Residences in Derby Acres are

⁹¹ There is a small ranch house located approximately one and a half miles to the west of the facility within Crocker Canyon. (Exs. 15, p. 185; 1, / 5.12.1.2.) However, this residence is used

approximately 2.5 miles northeast of the site. (*Ibid.*) In addition to Derby Acres, oilfield residences in Seneca Resources are approximately two miles east of the site within the oil and gas production field. (Exs. 15, p. 184; 1, 5.9.1.2.1.)

The Noise Element of the Kern County General Plan establishes the following permissible sound levels:⁹²

NOISE: Table 1
Kern County General Plan-Noise Element

Land Use Category	Maximum Permissible Sound Level		
	L ₅₀ (Day)	L ₅₀ (Night)	CNEL
Non-sensitive Land Uses	65	60	75
Moderately Sensitive Land Uses	60	55	70
Sensitive Land Uses	55	45	65
Highly Sensitive Land Uses	50	40	60

Source: (Ex. 15, p. 184.)

Construction

Construction noise is a temporary phenomenon; Applicant's construction period for the proposed project is scheduled to last for 20 months. (Exs. 15, p. 186; 1, / 5.12.1.3.) Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. (Ex. 15, pp. 186-87. In order to allow the construction of new facilities, construction noise during certain hours is commonly exempt from enforcement by local ordinances.

Applicant has predicted the potential noise impacts of site mobilization on the nearest sensitive receptors.⁹³ (Exs. 15, p. 187; 1, / 5.12.2.1 & Figure 5.12-2.)

seasonally (short periods) for cattle related activities. (*Ibid.*) This small ranch house was not considered a sensitive receptor because of the distance and because it is not used a majority of the time. (*Ibid.*)

⁹² Kern County has no specific LORS that limit construction noise. (Ex. 15, pp. 183; 187.)

Sound levels at fifty feet from the acoustic center of the proposed construction activities would range from approximately 85 to 90 dBA. (Ex. 15, p. 187.) Noise levels at the closest residence 10,500 feet from the construction site are projected to reach about 40 to 45 dBA for most work. (*Ibid.*) Ambient background noise levels at the residences are projected to be between 50 to 60 dBA L_{eq} . (*Ibid.*) Therefore, noise levels at the residence would not be noticeable based on the noise survey results. (*Ibid.*)

Construction activity and related traffic are typically scheduled during daytime hours. (Ex. 15, p. 187.) Accordingly, potential construction impacts to receptors either in the Seneca Resources residential area or in Derby Acres associated with the proposed project are considered less than significant. (Exs. 15, p. 187; 1, /5.12.2.1).

The loudest noise associated with the construction of a power plant of this type generally is an activity necessary to purge or flush the steam piping and tubing before operation begins; this is known as a "steam blow".⁹⁴ (Ex. 15, p. 187.) Steam blows can produce noise as loud as 130 dBA at a distance of 100 feet, attenuated to about 90 dBA at the nearest residence 10,500 feet away. (Ex. 15, p. 187.) Because 90 dBA is an exceedingly disturbing range, Staff has proposed that any high pressure steam blows be restricted to certain daylight hours and be muffled with an appropriate silencer to minimize annoyance to residents. (Ex. 15, p. 187; see (See Conditions **NOISE-4 & 5**).)

⁹³ Applicant commissioned RAM Engineering Services to conduct an ambient noise survey of the surrounding proposed site area to predict the likely noise effects of the proposed project on adjacent sensitive receptors. (Ex. 15, p. 186.)

⁹⁴ Steam blows are performed daily over the initial start-up period of two or three weeks typically lasting two or three minutes each. (Ex. 15, p. 187.) Steam blow noise attenuates faster with distance than other construction noise dominated by diesel engines because it is at a higher frequency.

Construction of the transmission facilities and the 16-inch water line will subject persons to noise.⁹⁵ (Ex. 15, p. 188.) For residences 1,000 feet from the transmission line route (and tower construction activity), the construction noise level would be approximately 59 dBA L_{eq} due to the distance from the noise source. (*Ibid.*) Thus, this construction noise would be above the ambient noise level of approximately 50 to 55 dBA L_{eq} considered typical for daytime noise levels near residential land uses (and previously measured at the plant site). (*Ibid.*)

Transmission line construction noise levels expected at Buttonwillow Park are just under 50 dBA L_{eq} . (Exs. 15, p. 188; 1, / 5.12.2.5.) This work, however, would only be temporary in nature and would progress at such a pace that no single receptor would be inconvenienced for more than a few days.⁹⁶ (*Ibid.*) To mitigate this potential problem, Staff's Conditions allow any person experiencing annoying noise interference to address the problem with Applicant through a noise complaint process. (See Conditions **NOISE-1, 2 & 8.**) Accordingly, Staff believes no significant adverse noise impacts are likely to occur due to the construction of the linear facilities. (Ex. 15, p. 188.)

Operation

During its operating life, the proposed facility would represent essentially a steady, continuous noise source day and night. (Ex. 15, p. 189.) Occasional short-term increases in noise levels would occur as steam relief valves open to vent pressure, or during startup or shutdown as the plant transitions to and from steady-state operation. (*Ibid.*) At other times, such as when the plant is

⁹⁵ Applicant recognizes those applicable LORS that would protect construction workers, and is committed to complying with them. (Exs. 15, p. 188; 1, / 5.12.5, 7.5.12., see Condition **NOISE-3**)

shut down for lack of dispatch or for maintenance, noise levels would decrease. (*Ibid.*)

The primary noise sources anticipated from the proposed facility include the:

- steam turbine generator;
- gas turbine generators;
- heat recovery steam generators;
- transformers;
- cooling tower;
- boiler feed pumps; and
- the circulating water pumps.⁹⁷ (Ex. 15, p. 189.)

No sensitive receptors are located to the west, north, or south of the proposed site. (Ex. 15, p. 189.) As described previously, the closest sensitive receptor is located at a distance greater than 1.8 miles to the east, with limited line of sight between the source (i.e., power plant) and the receiver (sensitive receptor). (*Ibid.*)

In addition, it is assumed that the noise generated from the new power plant would be slightly shielded or masked by the existing power plant adjacent to and east of the proposed project. (Ex. 15, p. 189.) The primary noise experienced by the sensitive receptor will be from oil and gas processing operations located between the sensitive receptor and the proposed project, as well as from noise generated from vehicle traffic along State Route 33. (*Ibid.*)

Finally, Applicant modeled facility noise emissions using noise prediction software. (Ex. 15, p. 189.) The software applies individual equipment noise level estimates and United State Geological Survey digital topography maps to estimate noise levels. (*Ibid.*) Potential noise sources are divided into

⁹⁶ Customarily performed during the daytime, such work would not cause any impacts at night, when lower noise levels are important to limit sleep interference. (Ex. 15, p. 188.)

⁹⁷ Secondary noise sources are anticipated to include pumps, ventilation fans and compressors. (Ex. 15, p. 189.)

point, line, plane or surface sources. (*Ibid.*) Acoustic data were modeled in octave form. (*Ibid.*) All modeling information was based on standard manufacturer performance data for the major equipment planned for the proposed facility. (Exs. 15, p. 189; 1, /5.12.2.2.)

Modeled noise level at the closest residential receptor associated with the proposed was well below the existing ambient noise conditions.⁹⁸ (Ex. 15, p. 189.) Staff therefore concluded that no significant adverse noise impacts are likely to occur due to the operation of the project. (*Ibid.*) Likewise, tonal and intermittent noises associated with operation of the transmission facilities and the 16-inch water pipeline are expected to be negligible. (*Ibid.*)

Cumulative impacts are not expected as Staff found that there are no planned or existing noise sources in the study area that could contribute to noise impacts from the proposed project. (Ex. 15, pp. 190-91.) Sunrise (98-AFC-4), three miles to the east, and La Paloma (98-AFC-2) under construction to the north are not expected to contribute to noise impacts from the proposed project. (*Ibid.*)

Closure scenarios should they occur would operate to stop all project related noise; any noise caused by dismantling or closure activities will be treated similarly to that caused by the initial construction activities. (Ex. 15, p. 191.)

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

⁹⁸ Condition of Certification **NOISE-6** would ensure that noise levels at the closest receptor (i.e., Seneca Resources) would not be any greater than the specified noise level of 58.6 dBA L_{eq} .

1. Construction and operation activities of the Midway Sunset Power Project will create noise.
2. The sensitive noise receptors nearest the Midway Sunset Power Project are approximately two miles away.
3. Construction activities associated with the project will be temporary in nature.
4. Construction and operational noise from the project is not expected to exceed will be attenuated by distance from sensitive noise receptors.
5. Construction and operational noise from the power plant will generally not increase the existing ambient noise levels experienced at the nearest sensitive receptors nor result in any significant adverse impacts to the environment or public health.
6. Applicant will implement a noise complaint program for area residents to provide for mitigation of any exposure to high noise levels during construction and operation.
7. Implementation of the measures contained in the Conditions of Certification below will assure that the Midway Sunset Power Project will comply with applicable LORS related to noise as specified in the pertinent portion of Appendix A of this Decision.

We therefore conclude that the Midway Sunset Power Project will not create any significant direct, indirect, or cumulative adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of site mobilization or ground-disturbance, the project owner shall notify all residents within one-half mile of the site or adjacent to the linear facilities, by mail or other effective means, of the commencement of site mobilization. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the telephone is unattended.

This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: The project owner shall transmit to the Energy Commission Compliance Project Manager (CPM) in the first Monthly Compliance Report following the start of site mobilization a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

Protocol: The project owner or authorized agent shall:

- a. use the Noise Complaint Resolution Form (see below for example), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- b. attempt to contact the person(s) making the noise complaint within 24 hours;
- c. conduct an investigation to determine the source of noise related to the complaint;
- d. if the noise is project related, take all feasible measures to reduce the noise at its source; and
- e. submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within 30 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the Kern County Environmental Health Department, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of site mobilization, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-4 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 110 dBA measured at a distance of 100 feet. The project owner shall conduct steam blows only during the hours of 8 a.m. to 5 p.m., unless the CPM agrees to longer hours based on a demonstration by the project owner that offsite noise impacts will not cause annoyance. If a low-pressure continuous steam blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM.

Verification: At least 15 days prior to the first high-pressure steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected, and a description of the steam blow schedule. At least 15 days prior to any low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-5 At least 15 days prior to the first steam blow(s), the project owner shall notify all residents within two miles of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification shall include a description of the purpose and nature of the steam blow(s), the proposed schedule, the expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: Within 5 days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-6 Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct a 38-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints. If the results from the survey indicate that the project noise levels [averaged over 38-hours between 6 p.m. and 7 a.m. (Friday through Sunday)] at the closest sensitive receptor are in excess of 58.6 dBA Leq, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

Verification: Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to the Kern County Environmental Health Department, and to the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-7 The project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted within 30 days after the facility is in full operation, and shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

NOISE-8 Noisy construction work (that which causes off-site annoyance, as evidenced by the filing of a legitimate noise complaint) shall be restricted to the times of day delineated below:

High-pressure steam blows:	8 a.m. to 5 p.m.
Other noisy work	7 a.m. to 10 p.m.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

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APPENDIX 1 - NOISE COMPLAINT RESOLUTION FORM

Western MSCC Energy Facility (99-AFC-9)		
NOISE COMPLAINT LOG NUMBER _____ Complainant s name and address: Phone number: _____		
Date complaint received: _____ Time complaint received: _____		
Nature of noise complaint:		
Definition of problem after investigation by plant personnel: Date complainant first contacted: _____		
Initial noise levels at 3 feet from noise source _____ dBA _____	Date:	
Initial noise levels at complainant s property: _____ dBA _____	Date:	
Final noise levels at 3 feet from noise source: _____ dBA _____	Date:	
Final noise levels at complainant s property: _____ dBA _____	Date:	
Description of corrective measures taken:		
Complainant s signature: _____ Date: _____		
Approximate installed cost of corrective measures: \$ _____ Date installation completed: _____ Date first letter sent to complainant: _____ (copy attached) Date final letter sent to complainant: _____ (copy attached)		
This information is certified to be correct: Plant Manager s Signature: _____		

(Attach additional pages and supporting documentation, as required).

C. SOCIOECONOMICS

Under this topic, we evaluate any direct, indirect, or cumulative impacts the project may cause to local public services or infrastructure, and, we examine any relevant community issues.

SUMMARY OF THE EVIDENCE

Direct Effects

During off-peak project construction, the number of workers will range from approximately 24 in the first month of construction to approximately 22 workers in the 20th month.⁹⁹ (Ex. 15, p. 287.) Peak construction activity will occur in the 11th and 12th months; when the greatest number of workers (about 400) will be needed. (*Ibid.*) Approximately 292 of these workers are expected to come from the communities in the affected area,¹⁰⁰ and approximately 108 are expected to relocate from communities outside of the one-way one-hour commute. (*Ibid.*) The average number of non-local workers needed for power plant construction is estimated to be 51. (*Ibid.*)

During operation of the project, about five workers will be needed to maintain and operate the project. (Ex. 15, p. 287.) According to Applicant's worst-case

⁹⁹ Project construction includes facilities related to power generation, electric power transmission, and fuel, water supply and wastewater pipelines. (Ex. 15, p. 287.)

¹⁰⁰ The study area, defined identically by Applicant and Staff, for socioeconomics includes western Kern County, Bakersfield, Maricopa, Shafter, Taft and Wasco. (Ex. 15, p. 286.) Census Designated Places includes Buttonwillow, Ford City, Greenacres, Lost Hills, Oildale, Rosedale, South Taft, Taft Heights, and Weedpatch. (*Ibid.*) These communities are within a one-hour, one-way commuting distance to the site. (*Ibid.*) Applicant selected this distance because communities within this range have the greatest potential for impact since labor, especially construction workers, will be drawn from these communities. (Ex. 1, p. 5.10-1.) In addition, if non-local workers are required for the project, these communities will serve as their likely relocation point. (*Ibid.*)

scenario estimate, approximately two (40 percent) of these operations workers may be non-local. (*Ibid.*)

Applicant's total construction employment is approximated to be the equivalent of 527 jobs (which includes 254 secondary jobs), based on an average of 273 project-related construction jobs (for power generation, transmission, and the water line). (Ex. 15, p. 287.) For project operations employment, Applicant's total employment is approximated to be the equivalent of 14 total jobs, (which includes nine secondary jobs). (*Ibid.*)

Sufficient housing is available in the project area to readily accommodate workers. (Ex. 15, p. 287-88.) Local medical, police, and emergency services are also adequate to absorb any additional demands caused by the project. (Ex. 15, p. 298.) Up to 46 school-aged children of construction personnel and 2 school-aged children for operations personnel are estimated to be added to the affected area schools, with 66 to 70 percent going to Bakersfield.¹⁰¹ (Ex. 15, p. 288.) Some Bakersfield high schools are over capacity. (*Ibid.*) Although the addition of project-related children to schools that are at or over-capacity may increase costs in terms of supplies, equipment and school personnel, the impact is expected to be small. (*Ibid.*)

Additional funding to offset the above direct impacts to the region's educational facilities is not available and mitigation of potential impact to schools at or above capacity beyond that contained in the Conditions of Certification is not feasible. (Ex. 15, p. 288.)¹⁰² Under state law, school funding is restricted to property taxes and statutory facility fees collected at the time the building permit is issued.

¹⁰¹ Percentages are based on similar projects in the affected area - La Paloma, Sunrise, and Elk Hills. (Ex. 15, p. 288.)

¹⁰² Under a recent amendment to Section 17620 of the Education Code (SB 50, signed on Aug. 27, 1998, Government Code, /65995), public agencies may not impose additional fees, charges, or other financial requirements to offset the cost for school facilities. (Ex. 19, p. 266.)

(*Ibid.*) Property tax revenue devoted to education in the region will reach about \$1,177,000 dollars, which amount represents about 50 percent of the total first year property tax revenue on the proposed project. (Ex. 15, p. 288.)

Cumulative Effects

Cumulative effects can occur when the construction schedule of one project overlaps that of another. This situation would create a demand for workers that cannot be met by local labor and thus result in an influx of non-local workers and their dependents. (Ex. 15, p. 294.) Besides Midway-Sunset, other identified projects in the western or southern area of Kern County include La Paloma, Sunrise, Elk Hills and Pastoria. (*Ibid.*)¹⁰³

Kern County has a large available labor pool. (Ex. 15, p. 294.) Thus the parties agree that Midway Sunset will primarily draw on the local labor force for construction and operation and that no significant influx of permanent employee or secondary employment households is expected. (*Ibid.*)

However, with the addition of each subsequent project into the construction phase, the ability of the available local labor force to meet project construction needs decreases. (Ex. 15, p. 294.) The cumulative need for workers in particular crafts or specialties will exceed the availability of workers in those crafts in the local area at different times based on the numbers of specialists available and the total number of specialists needed. (*Ibid.*) Each of the currently filed projects has identified their forecast for local vs. non-local workers based on the available work force by craft and their estimate of worker availability based on other project needs. (*Ibid.*, see Table 1 below.)

¹⁰³ Midway Sunset is the last of these projects awaiting CEC approval.

SOCIOECONOMICS Table 1
Cumulative Construction Workers (Estimated)

	La Paloma	Sunrise*	Elk Hills	Western Midway Sunset	Pastoria	Antelope **	Total***
Year 2000							
Jan							53
Feb	53						76
Mar	76						46
Apr	46						222
May	222						415
Jun	304		111				531
Jul	403		128				673
Aug	467	64	142				825
Sep	555	75	195				934
Oct	597	96	241				1085
Nov	637	142	306				1155
Dec	665	157	333				
Year 2001							
Jan	714	197	352				1263
Feb	729	233	347				1309
Mar	699	241	329				1269
Apr	625	255	317		25		1222
May	521	237	310	24	25		1117
Jun	399	213	231	45	55		893
Jul	195	193	158	73	80		699
Aug	141	124	124	101	120		610
Sep		104		148	180		432
Oct		78		196	275		549
Nov				250	280	48	578
Dec				307		45	352
Year 2002							
Jan				359	270	146	775
Feb				386	275	202	863
Mar				400	325	296	1021
Apr				400	330	392	1122
May				377	365	500	1242
June				251	340	614	1205
July				134	295	718	1147
Aug				90	295	772	1157
Sept				78	280	800	1158
Oct				58	240	800	1298
Nov				52	175	754	981
Dec				22	130	502	654
Year 2003							
Jan					60	268	328
Feb					40	180	220
Mar					35	156	191
Apr					50	116	166
May						104	104
Jun						44	44

(Ex. 15, p. 295.)

* Does not include the gas line and water line workers.

** Antelope estimated to be 1000 MW has a construction workforce based on twice the construction workforce of WMSCCP at 500 MW.

*** Some project schedules appear to be slipping e.g., Sunrise and Elk Hills. This is not expected to change the analysis of no impacts but merely to stretch out the construction schedules with a largely in-county labor force rotating construction projects in a county with substantial unemployment. The information for this table is derived from AFCs and a weekly *Energy Facility Siting and Environmental Protection Division Program Status Report*.

Taken together, the six project estimates for local versus non-local workers are consistent with the availability of general construction laborers and the availability of workers in specific crafts in Kern County. (Ex. 15, p. 295-96.) There is sufficient housing available in Bakersfield and other communities closer to the project sites to meet all non-local worker needs. (*Ibid.*)

Based on an average of approximately 830 workers during the four months of overlapping construction for five projects, 1,851 secondary jobs are expected to result during that period. (Ex. 15, p. 296.) Staff does not expect a significant number of these jobs to be filled by non-local workers because:

- these jobs are expected to be temporary, coincident with the construction schedule, and
- salaries associated with indirect and induced jobs generally do not attract new workers to an area. (*Ibid.*)

Over a period of approximately 37 months, secondary jobs, related to the construction of two or more of these projects at the same time, are expected to range from approximately 370 to 2,919. (*Ibid.*)

Secondary jobs expected from the operation of the projects range from 111 for two projects to 205 for all six projects (based on estimates of 59 employees for La Paloma and Sunrise projects, and 109 employees for all six projects). (Ex. 15, p. 296.) Likewise, secondary jobs are estimated to be filled from the local work force. (*Ibid.*)

Approximately 207 children are estimated to be added to Kern County schools based on an estimated average of 222 non-local workers for all six projects during construction. (Ex. 15, p. 296.) These children will not enter and leave the schools at the same time. The increase in school enrollments due to the six projects during construction will cause a potential significant socioeconomic impact on those schools in the Bakersfield area that are currently at or over

capacity. (*Ibid.*) However, the increase in school enrollments due to the five projects in western Kern County during operation is not expected to cause an impact because students will attend many schools that are under capacity and the number is relatively small. (*Ibid.*) Indeed, many non-local workers may not bring their children so the estimates could be high. Schools that are expected to handle more students are expanding their overall capability to meet needs and school impacts fees and property taxes will help fund education. (Ex. 15, p. 296-97.)

The Kern County Fire Department (KCFD) anticipates an increase in the number of emergency responses that typically occur at industrial facilities such as the proposed power plants. (Ex. 19, p. 270-71.) The KCFD has thus identified the need for additional equipment and personnel to enhance its emergency response capabilities for high angle and confined space rescues for these anticipated western Kern County facilities. (*Ibid.*)

The four expected projects in the Taft area, excluding Pastoria, will generate approximately \$1.37 million per year to the County's fire fund through property taxes (Ex. 15, p. 297.) La Paloma has agreed to provide advanced funding to the KCFD for supplementary equipment and personnel. (*Ibid.*) La Paloma will be reimbursed prospectively by the County and/or the other power plant owners as appropriate. (*Ibid.*)

The evidence of record demonstrates that any impacts from closure of the facility would not likely be significant. (Ex. 15, p. 298.)

FINDINGS AND CONCLUSION

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The Midway Sunset Power Project will draw primarily upon the local labor force for construction and operational workers.
2. The Midway Sunset Power Project will not cause an influx of a significant number of construction or operation workers into the project area.
3. Construction and operation of the Midway Sunset Power Project will result in substantially increased revenue from property and sales taxes, employment, and sales of services, manufactured goods, and equipment.
4. Kern County is the site for five proposed or approved power plants: the CEC has approved La Paloma, Sunrise, Pastoria, and Elk Hills. Midway Sunset is currently undergoing the AFC review process. All are located in western Kern County except Pastoria. Pastoria is in southern Kern County.
5. The projected construction schedules of these five power plants may result in an overlapping construction period of approximately four months.
6. Construction and operation activities of these projects, including those associated with Midway Sunset, will result in increased enrollment in schools in the Bakersfield area, and in the immediate vicinities closer to the projects.
7. Many schools in the Bakersfield area are at or near enrollment capacity; while schools closer to the immediate vicinity of the proposed project are typically below capacity.
8. State law restricts school funding to property tax revenues and statutory facility fees collected at the time the building permit is issued; public agencies may not impose additional fees, charges, or other financial requirements to offset the cost of school facilities.
9. Property taxes imposed upon the Midway Sunset project over its first year of operation are projected to total \$2.4 million to Kern County, of which about 50 percent is earmarked for education.
10. Future power plant projects in the general area will also be assessed property taxes.

11. Sufficient housing is available in the area to accommodate workers for the Midway Sunset Power Project, as well as those associated with other identified projects.
12. Existing local medical, police, and fire fighting services are adequate to meet the needs of the Midway Sunset Power Project, whether considered alone or in conjunction with other potential power plants, if a cumulative socioeconomic impact on fire services by power plants in western Kern County is implemented as expected.
13. The Kern County Fire Department possesses sufficient equipment and personnel to provide adequate emergency response capabilities for the Midway Sunset Power Project.
14. The Kern County Fire Department will require additional equipment and personnel to provide adequate emergency services to the power plants currently identified for the western Kern County area.
15. Each of the power plants proposed for the western Kern County area will benefit from the emergency services provided by the Kern County Fire Department.
16. Socioeconomic impacts resulting from construction and operation activities of the Midway Sunset Power Project, when considered alone or in combination with similar activities from other identified power plants in the area, will be mitigated to the extent feasible.
17. The Conditions of Certification below assure that the Midway Sunset Power Project will comply with the laws, ordinances, regulations, and standards related to socioeconomics as identified in the pertinent portion of Appendix A of this Decision.

We therefore conclude that the Midway Sunset Power Project will not result in any significant direct, indirect, or cumulative adverse socioeconomic impacts.

CONDITIONS OF CERTIFICATION

- SOCIO-1** The project owner shall pay the statutory school impact development fee as required at the time of filing for the in-lieu building permit with the Kern County Department of Engineering and Survey Services and Building Inspection.

Verification: The project owner shall provide proof of payment of the statutory development fee to the Compliance Project Manager (CPM) in the Monthly Compliance Report following the payment.

D. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which the Midway Sunset Power Project will affect the regional and the local transportation systems. In some cases large numbers of construction workers can, over the course of the construction period, increase roadway congestion and affect traffic flow. Transportation of large pieces of equipment on local roadways may also prove disruptive, as well as trenching and other activities associated with building the project's linear facilities. During these licensing proceedings, we therefore identified:

- the roads and routings that will be used;
- potential traffic problems associated with those routings;
- the anticipated number of deliveries of oversized/overweight equipment;
- anticipated encroachments upon public rights-of-way;
- the frequency of, and routes associated with, delivery of hazardous materials; and
- the availability of alternative transportation methods.

SUMMARY OF THE EVIDENCE

The Midway Sunset Power Project will increase traffic flow on the local road network. (Ex. 15, p. 165.) The major highways in the area of the proposed project site are State Route (SR) 43, SR 119, SR 166, SR 33 (Westside Highway), SR 58, and Interstate 5. (Ex. 15, p. 159; see Figure 1 below.) There are five county-maintained roadways affected by the proposed project:

- Midway Road,
- Midol Road,
- Mocal Road,
- Shale Road, and

- West Crocker Springs Road.¹⁰⁴ (*Ibid.*)

These local roads primarily serve traffic related to the oil field activities in the area and would provide connections to the project site from State Route 33. (*Ibid.*)

The proposed project site is located on West Crocker Springs Road adjacent to Applicant s existing 225 MW cogeneration facility. (Ex. 15, p. 159.) Crocker Springs Road extends from the western Kern County limits to its terminus at Mocal Road. (Ex. 15, p. 159; see Figure 1 below.) Near the site, West Crocker Springs Road is approximately 17 feet wide (edge of pavement to edge of pavement) with no existing paved shoulders. (*Ibid.*) West Crocker Springs Road is classified as a two-lane local roadway and carries approximately 800 vehicles per day. The proposed project site will be served primarily from access points along West Crocker Springs Road. (*Ibid.*)

SR 33 provides access to the site via Mocal Road, Midoil Road, Shale Road, and West Crocker Springs Road. (Ex. 15, p. 159; see Figure 1 below.) SR 33 traverses most of the state running generally along the California coast; it is under the jurisdiction of the California Department of Transportation (Caltrans). (*Ibid.*) Near the proposed project site, SR 33 is a two-lane highway with a 60-MPH design speed and carries approximately 10,600 vehicles per day. (*Ibid.*)

¹⁰⁴ The five county-maintained roads affected by proposed project traffic operate at acceptable levels under existing conditions. (Ex. 1, p. 5.11-22 & Table 5.11-3.)

When assessing a project s potential impact on the local transportation system, levels of service (LOS) measurements represent the flow of traffic.¹⁰⁵ (Ex. 15, p. 163.)

¹⁰⁵ LOS is a description of a driver s experience at an intersection or roadway based on the level of congestion (delay); however, it is not a measure of safety or accident potential. (Ex. 15, p. 163.)

TRAFFIC AND TRANSPORTATION

Figure 1

Source: Ex. 15, p. 161

Levels of Service range from A, free flowing traffic, to F, which is heavily congested with flow-stoppages. (Ex. 15, pp. 163-64.) A LOS D threshold is the minimum standard accepted by both Caltrans and Kern County. (*Ibid.*) The following roadway segments are operating at a level worse than the LOS D standard:

- State Route 33 (State Route 119 to Midway Road);
- State Route 43 (Junction State Route 58 East to Junction State Route 58 West);
- State Route 58 (Lokern Road to State Route 43);
- State Route 99 (State Route 119 to State Route 58 East); and
- State Route 119 (Harrison Street to State Route 43);

1. Construction Impacts¹⁰⁶

Construction is expected to last a total of 20 months. (Ex. 15, p. 164.) Applicant has indicated that the estimated construction workforce traveling to/from the site on a typical day is 188, assuming a single shift and a 40-hour workweek.¹⁰⁷ (*Ibid.*) This number includes any contractor staff and/or construction related visitors. (*Ibid.*) During the peak construction period, approximately 400-construction workers/visitors/staff are expected on a typical weekday. (*Ibid.*)

Sixty eight percent of the construction workforce will originate from Bakersfield (east of the project site), four percent from Taft (southeast of the project site), four percent from Shafter (north of the project site), and twenty-four percent from

¹⁰⁶ Staff evaluated project impacts under the construction phase during the peak hour of an average construction period, and the peak hour of the peak construction period. (Ex. 15, pp. 163-64.)

¹⁰⁷ An estimate of the number of trips by construction workers is based upon a conservative assumption that 100 percent of the workers are driving alone (i.e., no carpooling assumed) to/from the site during the peak hour. (Ex. 15, p. 164.) Parking for the construction workforce will be provided in an area on or adjacent to the project site and any ride-sharing vehicles will remain on site during work hours. (*Ibid.*; see Condition **TRANS-5**.)

parts of southern California (e.g., Los Angeles area) during both the average and peak construction periods.¹⁰⁸ (*Ibid.*)

Truck deliveries of plant equipment and construction materials to the proposed project site will account for most of the increases in construction traffic. (Ex. 15, p. 164.) In total, approximately 4,100 deliveries are expected over the 20-month construction phase. (*Ibid.*) This would entail 2,600 light truck deliveries and 1,500 heavy truck deliveries, an average of approximately 10 deliveries per weekday, or 190 deliveries per month.¹⁰⁹ (*Ibid.*) Transportation of equipment exceeding the load size and weight limits of any roadways will require special permits; staff has set forth mitigation measures and conditions of certification that ensure compliance with these standards. (Ex. 15, p. 171-78.)

The combination of commute, truck, and visitor traffic will degrade roadway operations in the local area. (Ex. 15, p. 166.) The addition of project construction traffic will degrade the level of service on the following road segments from LOS D to LOS E during both the peak hour of an average construction workday, and the peak hour of a peak construction workday:

- SR 33 (SR 166 to SR 119 east); and
- SR 119 (Interstate 5 to SR 99). (*Ibid.*)

¹⁰⁸ Hazardous substance handling and disposal is addressed in the **WASTE MANAGEMENT** and **HAZARDOUS MATERIALS MANAGEMENT** sections of our Decision, *supra*.

¹⁰⁹ Applicant specifies a light truck as having two axles and a heavy truck as having three or more axles). (Ex. 15, p. 164.) Truck trips are estimated to be 21 per weekday during the peak construction month. (*Ibid.*) Applicant projects the pattern of truck trips will be as follows: 70 percent of truck deliveries would originate in Bakersfield, 20 percent will originate in the Los Angeles area (south of the project site), and approximately 10 percent will originate in the areas north of Bakersfield. (Ex. 15, p. 165.) Applicant assumes that deliveries to the project site will occur between 7:00 a.m. and 5:00 p.m. on weekdays; provide a conservative analysis, however, Applicant specifies that all deliveries, in addition to the commute and visitor traffic, are assumed to occur during the peak traffic hour. (*Ibid.*)

In addition, the proposed project will result in increases in traffic on roadways already operating worse than the LOS D threshold. (Ex. 15, p. 166.) The following road segments will continue to operate below the LOS D threshold, the minimum standard accepted by Kern County during both the peak hour of an average construction workday and the peak hour of a peak construction workday:

- SR 33 (SR 119 to Midway Road) — LOS E;
- SR 43 (Junction SR 58 East to Junction SR 58 West) — LOS E;
- SR 58 (Lokern Road to SR 43) — LOS E;
- SR 99 (SR 119 to SR 58 East) — LOS E;
- SR 99 (SR 58 East to SR 58 West) — LOS F; and
- SR 119 (Harrison Street to Golf Course Road) — LOS E. (*Ibid.*)

Mitigation measures to minimize project traffic impacts on the affected state highways are being proposed as part of a construction traffic control and implementation plan (to be coordinated with Kern County). (Ex. 15, p. 166.) Caltrans traffic count data indicates that traffic volumes on affected state highways during off-peak hours are relatively low. (Ex. 15, p. 166.) Therefore limiting truck and commute traffic associated with Midway Sunset construction to off-peak travel periods is not expected to cause significant, adverse impacts to the level of service of these highways. (*Ibid.*) Compliance with the provisions of the transportation permits required from Caltrans would be necessary to ensure that any potential safety impacts on roadways with significantly high accident rates are also minimized. (*Ibid.*, see Conditions **TRANS-1 & 2.**)

A potential safety problem may result with the truck transport of heavy construction equipment and machinery along State Route 58--north of McKittrick (approximately 1.6 miles in length beginning at milepost 15.42) that has substantial horizontal curvature. (Ex. 15, p. 166.) Trucks with 3 or more axles carrying heavy construction equipment may have difficulty maneuvering through this highway section and will likely need to make wide turns (into the opposing traffic lane) around the curves in the roadway. (Ex. 15, p. 166-67.) This may

cause a safety problem for other vehicles traveling on this portion of the highway due to the limited sight distance, tight turning radii, and lack of any shoulder due to the embankments that enclose the travel way. (Ex. 15, p. 167.) Mitigation to reduce this impact to less than significant would require flagmen at each end of this 1.6-mile section of SR 58 to stop traffic while any delivery truck passes through. (*Ibid.*; see Conditions **TRANS-6 & 7.**)

Staff evaluated a potential traffic impact and safety problem for the unsignalized intersection of Midway Road/State Route 119. (Ex. 15, p. 167; see Figure-1 above.) This 3-way intersection currently provides stop-control on the eastbound (Midway Road) approach.¹¹⁰ (Ex. 15, p. 167.) Mitigation of any impacts at this intersection related to the proposed project (and other projects) could be accomplished through traffic control via the use of police or flagmen during the PM peak hour. (Exs. 15, p. 167; 16 C;)

In addition, Staff's field observations indicate that the pavement section of West Crocker Springs Road is only 17 feet wide (edge of pavement to edge of pavement) with no paved shoulder. (Ex. 15, p. 167.) This would indicate inadequate street width for two-way truck traffic traveling to/from the proposed project site. (*Ibid.*) However, since adequate sight distance is available, trucks would be able to travel on the unpaved shoulder of the roadway for short distances or pull over to allow two-way traffic. (*Ibid.*) The existing average daily traffic on this county road is relatively low and therefore, no significant traffic impacts (i.e., congestion and/or delay) are expected on West Crocker Spring Road. (*Ibid.*; see Conditions **TRANS-6 & 8.**)

¹¹⁰ This route would serve about 135 project trips (129 commute trips and 6 truck delivery trips) during an average construction period and 290 project trips (274 commute trips and 16 truck delivery trips) during a peak construction period for the proposed project. (Ex. 15, p. 167.) According to Caltrans, this intersection currently warrants a traffic signal. (*Ibid.*)

Truck transport will be minimized whenever possible and cost effective by Applicant's use of rail lines to transport heavy equipment and machinery. (Ex. 15, p. 167.) The Union Pacific Buttonwillow Branch railroad line provides railroad tracks with public access that exist near the end of the line in Buttonwillow.¹¹¹ (*Ibid.*) Trucks would proceed south on State Route 58 from the rail transfer to access the proposed project site.¹¹² (*Ibid.*)

Construction of the proposed project's transmission-line is projected to last six months. (Ex. 15, p. 168.) It will require 10 to 25 construction workers per month; the workforce will peak at 25 during construction and conductor installation. (*Ibid.*) Access to transmission-line tower structures will be over current transmission line access roads (with short access paths to tower sites), or by existing roads, farm roads, and short spur roads. (*Ibid.*) The transmission-line route will cross SR 33 and Skyline Road. (*Ibid.*) An estimated total of 97 truck deliveries will be made during construction of the transmission line with a peak delivery of 67 vehicles during the eighth month after the start of construction. (*Ibid.*)

Construction of the water supply line is expected to last one month. (Ex. 15, p. 168.) The peak workforce following the start of construction will be approximately 22 employees during the 14th month. (*Ibid.*) An estimated total of 125 truck deliveries will be made to the water supply line/pump station staging

¹¹¹ According to Applicant, these tracks provide adequate access conditions to and from the line for cargo to be transferred from railcars to trucks. (Ex. 15, p. 167.) This line typically employs one train per weekday, transporting various products including construction material and equipment. (*Ibid.*) Consequently, deliveries via rail should not disrupt any existing Union Pacific operations nor would the use of the public access tracks for deliveries to the site have any potential to increase conflicts between trains and automobiles at at-grade crossings since all relevant public at-grade crossings are equipped with railroad grade crossing warning equipment. (Ex. 15, p. 167-68.)

¹¹² This route would employ the section of State Route 58 north of McKittrick (approximately 1.6 miles in length beginning at milepost 15.42) that carries potential safety impacts as described earlier. Mitigation to reduce this impact to less than significant would require flagmen at each end of this 1.6-mile section of SR 58 to stop traffic while any delivery truck passes through as described above. (Ex. 15, p. 168.)

sites during construction of the water supply line. (*Ibid.*) The water supply pipeline crosses West Crocker Springs Road at two locations, and trenching is required within the established right-of-way. (*Ibid.*)

The pipeline will be trenched under the road at the eastern location, however, access for through traffic will be provided at all times. (Ex. 15, p. 168.) Traffic will be either directed along one-half of the roadway or routed across temporary trench bridging. (*Ibid.*; see Conditions **TRANS- 6, 7, 8 & 9.**) All pipeline construction shall take place outside the peak traffic periods to avoid traffic flow disruptions and access for emergency vehicles will be maintained during construction. (Ex. 15, p. 168.) In light of the relatively small construction workforce, their distribution at several sites along lines, and our conditions of certification, we conclude that the transmission-line and water-supply-pipeline construction will have no significant traffic impacts on local roadways and state highways. (Ex. 15, p. 168-69.)

2. Operation Impacts

The operational phase of the proposed project will require the addition of five full-time employees. (Ex. 15, p. 169.) These employees may utilize Applicant's currently operating vanpool from Bakersfield that has excess capacity. (*Ibid.*) Adequate parking will be available for employees not utilizing the vanpool. (*Ibid.*) Accordingly, the existing state highway and county roadway system will not be impacted by any increase in commute traffic associated with the operation of the proposed project. (*Ibid.*)

Likewise, the operation of both the transmission and water-supply-lines will not have an impact on area roadways except for short-term maintenance or unplanned difficulties. (Ex. 15, p. 169.) In either case, the impacts create traffic flow difficulties that are typically limited in duration and are not expected to cause any significant traffic impacts. (*Ibid.*)

3. Hazardous Material Deliveries

The transportation and handling of hazardous substances associated with the proposed project can increase roadway hazard potential.¹¹³ (Ex. 15, p. 169.) The project will add one delivery every other day (approximately 3 deliveries per week) of aqueous ammonia solution. (*Ibid.*) Other hazardous and non-hazardous materials associated with operation of the plant will occur much less frequently (on a per month and per year basis). (*Ibid.*)

Hazardous materials will be transported to the site utilizing state highways as much as possible. (Ex. 15, p. 169.) For example, to transport hazardous materials originating in Bakersfield, Applicant will use SR 58, SR 43, SR 119, and SR 99.¹¹⁴ Hazardous material transport originating in the Los Angeles area (south of the project site) will use Interstate 5, SR 119, SR 166, and SR 33. (*Ibid.*)

We conclude that the existing state highway and county roadway system will not be significantly impacted by any increase in truck traffic associated with the operation of the proposed project. Potential impacts of hazardous substances transportation can be mitigated to insignificance by compliance with federal and state standards established to regulate the transportation of hazardous substances.

4. Cumulative Impacts

¹¹³ The California Vehicle Code and the Streets and Highways Code (Sections 31600 through 34510) are equally important to ensure that the transportation and handling of hazardous materials are done in a manner that protects public safety. (Ex. 15, p. 169-70.) Enforcement of these statutes is under the jurisdiction of the California Highway Patrol. (Ex. 15, p 170.)

¹¹⁴ These routes would not employ the section of SR 58 north of McKittrick (approximately 1.6 miles in length beginning at milepost 15.42) that carries potential safety impacts. (Ex. 15, p. 169; see (See Condition **TRANS- 6** *infra*.)

In addition to the traffic generated by the proposed project construction activities, Applicant identified three other Kern County power plant projects (Elk Hills, Sunrise and La Paloma) in its cumulative analysis. (Ex. 15, p. 170.) Of these, only La Paloma has begun construction. (*Ibid.*) Applicant identified four scenarios for cumulative impacts on traffic related to Midway Sunset's construction:

- Scenario 1 - construction of the Sunrise Project would begin September 2000, and construction of the Elk Hills Project would begin December 2000;
- Scenario 2 - construction of the Sunrise Project would begin September 2000, construction of the Elk Hills Project would begin December 2000, and construction of the Western MSCC Project would begin March 2001;
- Scenario 3 — construction of the Sunrise and Elk Hills power plant projects would take place such that the peak traffic months for both projects coincide; and
- Scenario 4 - construction of the Sunrise, Elk Hills, and Western MSCC power plant projects would take place such that the peak traffic months for all three projects coincide.

Scenarios 2 and 4 degrade the level of service to unacceptable levels (from LOS D to LOS E) on the following segments of the affected state highways:¹¹⁵

- SR 33 (SR 166 to SR 119 east); and
- SR 119 (Golf Course Road to State Route 43). (Ex. 15, p. 170.)

Mitigation to minimize the traffic impacts under cumulative conditions on the affected state highways can be accomplished through the implementation of transportation demand strategies that limit all commute and truck traffic related to proposed project construction to off-peak hours. (Ex. 15, p. 171.) This mitigation will be part of a construction traffic control and implementation plan (to be coordinated with Kern County).¹¹⁶ (*Ibid.*; see Condition **TRANS-6**.)

¹¹⁵ Scenario two is unlikely. The EC approved both Elk Hills and Sunrise in November 2000.

¹¹⁶ Applicant does not identify any expected amount of population growth in the region including the Cities of Bakersfield, Taft, Shafter, Buttonwillow and McKittrick. (Ex. 15, p. 171.) Therefore, no assumptions of an increase in traffic volumes were made (other than for the three other Kern County power plant projects identified above) for the state highway or county road system in the

5. Closure

Unexpected temporary closure of the Midway Sunset facility would likely result in impacts to traffic and transportation that are similar to those for normal operation of the plant. (Ex. 15, p. 171.) In case of permanent closure, traffic and transportation impacts would be similar to those associated with project construction. (*Ibid.*) Permanent closure will involve a peak work period of increased commute traffic. (*Ibid.*) As with construction impacts, the local roadway system within the vicinity of the project should be able to handle such traffic without a significant impact to the current LOS of the area roads. (*Ibid.*)

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, we find and conclude as follows:

1. Construction and operation of the Midway Sunset Power Project will cause increased traffic on the local area's road network.
2. The capacities of the roads in the local area are sufficient, with mitigation, to satisfactorily absorb the increased traffic occasioned by construction and operation of the Midway Sunset Power Project.
3. All potential adverse impacts from the transportation and handling of hazardous substances can be mitigated to a level of insignificance by complying with applicable law.
4. Compliance with the Conditions of Certification of this Decision will mitigate the transportation and handling of hazardous materials during the construction and operation phases.
5. Construction activities will encroach upon public rights-of-way, and create adverse impacts upon roadway functions and levels of service.

affected areas. (*Ibid.*) However, the regional area will likely continue to experience development and traffic volume growth. (*Ibid.*) Consequently, traffic volumes on the regional roadway system will likely increase. The project's level of traffic generation will diminish between the construction and operational phases such that an increase in background traffic should not be problematic. (*Ibid.*)

6. Impacts upon roadways due to construction activities are temporary and not significant.
7. Construction and operation of the Midway Sunset Power Project will not contribute to cumulatively significant adverse traffic impacts.
8. The Conditions of Certification below ensure that construction and operation of the Midway Sunset Power Project will comply with applicable laws, ordinances, regulations, and standards related to traffic and transportation as identified in Appendix A.

We therefore conclude that construction and operation of the project will not result in significant direct, indirect, or cumulative adverse impacts to the area's transportation network.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with California Department of Transportation (Caltrans) and Kern County limitations on vehicle sizes and weights. In addition, the project owner or their contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for both rail and roadway use.

Verification: In Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months from the date of issuance.

TRANS-2 The project owner or their contractor shall comply with California Department of Transportation (Caltrans) and Kern County limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during that reporting period. In addition, the project owner shall retain copies of these permits and

supporting documentation in its compliance file for at least six months from the date of issuance.

TRANS-3 The project owner shall ensure that all federal and state regulations for the transport of hazardous materials are observed.

Verification: The project owner shall include in its Monthly Compliance Reports copies of all permits and licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-4 Following completion of project construction of the power plant and all related facilities, the project owner shall repair West Crocker Springs Road and Shale Road to its pre-construction condition.

Prior to start of site mobilization, the project owner shall photograph West Crocker Springs Road from Mocal Road to the project site and Shale Road from SR 33 to Mocal Road. The project owner shall provide the CEC Compliance Project Manager (CPM), Kern County and Caltrans (as appropriate) with a copy of these photographs. Prior to start of site mobilization, the project owner shall also notify Caltrans about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction related activities associated with other projects.

Verification: Within 30 days after completion of project construction, the project owner shall meet with the CPM, Kern County and Caltrans to determine and receive approval for the actions necessary and schedule to complete the repair of identified sections of public roadways to original or as near original condition as possible. The project owner shall provide to the CPM a letter from Kern County stating their satisfaction with the road improvements.

TRANS-5 During construction of the power plant and all related facilities, the project owner shall enforce a policy that all project-related parking occurs in designated parking areas.

Verification: At least 60 days prior to start of site mobilization, the project owner shall submit a parking and staging plan for all phases of project

construction to Kern County for review and comment, and to the CPM for review and approval.

TRANS-6 The project owner shall develop a construction traffic control and transportation demand implementation program to limit construction-period truck and commute traffic to off-peak periods in coordination with Kern County and Caltrans. Specifically, this plan shall include the following restrictions on construction traffic addressing the following issues for power plant construction:

- prohibiting the transport of hazardous material on the section of State Route 58 just north of McKittrick approximately 1.6 miles long beginning at milepost 15.42;
- addressing exceptional needs for traffic control and signing for the affected areas related to the construction of linear facilities within the public right-of-way;
- establishing construction work hours outside of the peak traffic periods to ensure that construction workforce traffic occurs during off-peak hours;
- scheduling of heavy vehicle equipment and building materials deliveries to occur during off-peak hours; and
- maintaining access to adjacent residential and commercial properties;

The construction traffic control and transportation demand implementation program shall also include the following restrictions on construction traffic addressing the following issues for linear facilities:

- timing of pipeline construction (all pipeline construction affecting county roads shall take place outside the peak traffic periods to avoid traffic flow disruptions);
- signing, lighting, and traffic control device placement;
- temporary travel lane closures;
- maintaining access to adjacent residential and commercial properties; and
- emergency access;

Verification: At least 30 days prior to start of site mobilization, the project owner shall provide to Kern County and Caltrans for review and comment,

and to the CPM for review and approval, a copy of their construction traffic control plan and transportation demand implementation program.

TRANS-7 The project owner shall provide traffic control at the 1.6-mile section of SR 58 beginning at milepost 15.42 just north of McKittrick to allow delivery trucks carrying construction equipment and materials (not hazardous materials) related to the construction of the Western Midway Sunset project to safely pass through this portion of the highway. A flagman at each end of the 1.6-mile highway section will be required to stop all traffic traveling towards the highway section in concern while any delivery truck passes through. The project owner shall provide traffic control during the construction phase of the Western MSCC project.

Protocol: The use of a flagman requires that a Traffic Control Plan be submitted to Caltrans.

Verification: At least 30 days prior to site mobilization, the project owner shall submit a Traffic Control Plan to Caltrans for approval. The project owner shall provide the CPM a copy of a letter from Caltrans acknowledging approval of the Traffic Control Plan at least 15 days prior to site preparation and earth-moving activities.

TRANS-8 If the traffic signal planned for the State Route 119/Midway Road intersection is not in place prior to the site preparation or earth—moving activities of the Western MSCC project, the project owner shall provide traffic control at the SR 119/Midway Road intersection during construction of the Western MSCC project through the use of a policeman/flagman during the PM peak traffic hours. The project owner shall provide traffic control during the construction phase of the Western MSCC project until the traffic signal is installed.

Protocol: The use of a policeman/flagman requires that a Traffic Control Plan be submitted to Caltrans.

Verification: At least 30 days prior to site mobilization, the project owner shall submit a Traffic Control Plan to Caltrans for approval. The project owner shall provide the CPM a copy of a letter from Caltrans acknowledging approval of the Traffic Control Plan at least 15 days prior to site mobilization.

TRANS-9 The project owner shall utilize rail delivery for the delivery of heavy equipment and machinery whenever possible and cost effective. Prior to the first rail shipment of heavy equipment or machinery, the project owner shall complete the following with regards to rail line use:

- ensure that all rail lines used for delivery of heavy equipment and machinery are equipped with railroad grade crossing warning equipment at all public at-grade crossings. If crossing warning equipment is not in place, then the project owner shall provide flagmen at appropriate locations to the satisfaction of the Public Utilities Commission (PUC);
- make all necessary arrangements to allow the use of the Union Pacific Buttonwillow Branch rail line or other rail line approved by the CPM for delivery of heavy equipment and machinery.

Protocol: The project owner shall submit a plan to the CPM for review and approval which specifies: the rail line(s) to be used, identification of public at grade rail crossings with and without active controls, anticipated routes that delivery trucks would use from the rail line(s) to the plant site, and a safety plan covering the use of flagmen at at-grade crossings without active controls. The project owner shall reach an agreement with the owner of each of the rail lines to be used to permit use of each line for the purposes described above and to ensure that operational conditions for each line are adequate to handle the expected deliveries and that any PUC standards are met. A copy of this agreement shall be submitted to the CPM.

Verification: At least 90 days prior to first rail shipment of heavy equipment or machinery, the project owner shall submit the plan to the CPM for review and approval. The submittal to the CPM shall include a copy of the agreement with the owner of each rail line to be used. The project owner shall include in the monthly compliance reports during construction a summary of the actions taken in compliance with the rail delivery safety plan.

E. VISUAL RESOURCES

Visual resources are the natural and the cultural features of the environment that one sees. Visual quality is considered to be the value of these visual resources. Scenic resources are those visual resources that contribute positively to visual quality. Under this topic, it is thus relevant to assess whether the project will create a substantial intrusion upon the viewshed.¹¹⁷

SUMMARY OF THE EVIDENCE

The proposed project, including the linear facilities, is located on private lands. (Ex. 15, p. 206.) As such, it is not subject to federal land management requirements. (*Ibid.*) Likewise, no roadway in the project vicinity is a designated or eligible State Scenic Highway, and therefore, no federal or state regulations pertaining to scenic resources are applicable to the project. (*Ibid.*)

The proposed plant site is located on a gentle rounded east to west trending ridge on the floor of Crocker Canyon. (Ex. 15, p. 208.) The steep northeast facing slopes of the Temblor Range bound Crocker Canyon on the south and the rounded south facing slopes of the Telephone Hills on the north. (*Ibid.*) The climate is arid, and the hills are covered with a mantle of low growing annual grasses with patches of saltbush scrub and alkali sink scrub.¹¹⁸

¹¹⁷ A visual impacts determination and an inquiry whether a proposed project complies with applicable LORS is required under current law and regulations. (Ex. 15, p. 203.) Visual or aesthetic resources are addressed in the Kern County General Plan, Open Space Element, and are implemented by the Kern County Planning and Development Services Department. (*Id.* at, p. 207.) This element of the General Plan requires public notification and review of any projects that may adversely impact visual resources. (*Ibid.*) In accordance with Chapter 19.86 of the Kern County Zoning Code, Applicant is required to prepare a Landscape Plan when final construction drawings of the project are completed. (*Ibid.*)

¹¹⁸ See section on Biological Resources, *supra*, for a fuller discussion of the local geography.

The area surrounding the proposed project has been subject to intensive oil and gas exploration since the early part of the 20th century, and the natural landscape has been modified extensively. (Ex. 15, p. 208.) A network of access roads, terraced drilling areas, oil pumps, aboveground pipelines, and storage tanks crisscross the hills in the area of the project site. (*Ibid.*) Oil and gas processing facilities are all prominently visible within the landscape pattern. (*Ibid.*) Roads, canals, power lines, agricultural storage facilities and oil production facilities are very prominent and little natural vegetation or natural landscape is visible.¹¹⁹ (*Ibid.*)

The proposed site is immediately adjacent to Applicant's 225 MW cogeneration plant. (*Ibid.*) The main structures of the cogeneration plant include:

- exhaust stacks,
- fin-fan units,
- water tanks, and
- transmission poles and lines. (Ex. 15, p. 208.)

Facilities related to the Midway Sunset Oil Field are located immediately adjacent to the site to the east. (Ex. 15, p. 208.) The oil facilities include:

- pumping units,
- processing facilities,
- tanks,
- steam generators,
- surface piping,
- water recovery plants, and

¹¹⁹ A small number of residences scattered through this area tend to be ranch homes rather than non-farm rural residences, and residential uses are secondary to this area's oil production function. (Ex. 15, p. 208.) Communities in the project area include McKittrick, Buttonwillow (northeast), and Derby Acres (east) a small-unincorporated residential community located along Highway 33 in the Buena Vista Valley, which lies along the southern edge of the Elk Hills range. (*Ibid.*) Buttonwillow is an unincorporated community located on the flat lands approximately four miles north of the northern edge of the Elk Hills range. (*Ibid.*) Buttonwillow is the largest of the communities in the project area and consist of residential homes and commercial service centers for the surrounding agricultural operations in the area. (*Ibid.*)

- paved and unpaved roads. (*Ibid.*)

The evidence of record contains the results of analyses performed to assess the project's visual impact. (Ex. 15, pp. 209-24.) These analyses are based, in part, on viewshed evaluations from "Key Observation Points" (KOPs). (Ex. 15, p. 205; 209.) Applicant and Staff selected KOPs to provide the basis for evaluation of potential impacts by comparing the appearance of existing visual features in the project vicinity before and after project construction.¹²⁰ (*Ibid.*) KOPs include locations that are chosen to be representative of the most critical locations from which the project would be seen. (*Ibid.*)

Staff and Applicant chose six KOPs for the development of photo simulations that could be used as a basis for visualizing the plant's potential effects. (Ex. 15, p. 209.) **Visual Resources Figure 1** below shows the location of the KOPs used in the analysis and the direction of each view.

¹²⁰ KOPs were not identified or defined for the water supply and wastewater lines because they will be underground or on the ground either invisible or not highly visible. (Ex. 15, pp. 205, 209.) In addition, they will generally be located within the 74 square mile boundaries of the Midway Oil and Gas Field. (*Ibid.*)

VISUAL RESOURCES Figure 1

Source: Ex. 15, p. 211

Methodology

Applicant's methodology used in its visual assessment for the proposed project included a description and identification of the process, the criteria applied, and its basis of origin. Staff analyzed this methodology in the Cultural Resources section of the FSA. (Ex. 15, pp. 203-06; see Visual Resources Appendix B & Table B-1, pp. 245-51.)

Based upon a combination of these evaluative criteria, and in evaluating the six KOPs, Staff concluded that the project is without any significant visual impact. (Ex. 15, pp. 210-224.)

1. Potential Impacts

White vapor plumes (water vapor condensation from the exhaust) have the potential to exist and to be visible from the project stacks and cooling tower.¹²¹ (Ex. 15, pp. 224-228.) Applicant's consultant prepared an independent plume analysis in response to Staff's data request.¹²² (*Ibid.*) The consultant provided modeling results for the frequency, duration, and size of the plumes from the project's cooling tower. (*Ibid.*) Considering all the applicable evaluative criteria, Staff concluded that visual impacts from cooling tower plume would be less than significant. (Ex. 15, pp. 224-228.)

Cumulative impacts were likewise determined to be less than significant. (Ex. 15, p. 228.) The proposed project would add a noticeable but not considerable

¹²¹ The frequency, persistence, and size of visible condensate plumes depends primarily on the design and type of combustion turbine generator, heat recovery steam generator, auxiliary boiler, and cooling tower, as well as meteorological conditions of temperature and humidity. (Ex. 15, p. 224.)

¹²² Staff evaluated the independent plume analysis and concluded that the analysis is complete and acceptable as an estimate of the potential visual impacts from the cooling tower steam plume. (Ex. 15, p. 225.)

increment to the existing industrial character of this portion of the Telephone Hills. (*Ibid.*) When the proposed project is considered with La Paloma (98-AFC-2), Sunrise (99-AFC-4) and Elk Hills (99-AFC-1), the viewshed is visually separated by approximately 7 to 8 miles. (Ex. 15, p. 228.) Thus, residential viewers with a view of one of these plants would not have a view of the other plants, so the four plants would not cause a cumulative visual impact for local residents.

In addition, cumulative impacts at Midway Substation will be insignificant because the proposed Elk Hills and Midway Sunset transmission lines approach the substation from different directions.¹²³ (Ex. 15, p. 228.) Moreover, the Buttonwillow area already has a high density of transmission lines, and the incremental impact of the proposed project will be difficult to distinguish from the other transmission lines. (*Ibid.*) In conclusion, the proposed power plant would not contribute substantially to a significant cumulative visual impact. (*Ibid.*)

Painting the facility to blend with the background and properly designing outdoor lighting, as required in the Conditions of Certification, will further reduce the proposed project's visibility. Finally, Applicant will submit to Staff a Landscape Plan when final construction drawings of the proposed project are completed. (Ex. 15, p. 229.) The Landscape Plan will be designed to conform to the requirements of the Kern County Zoning Code. (See Conditions of Certification below.)

A Closure Plan submitted in case of a planned or unexpected permanent closure will address removal of the facility's structures and transmission poles to reduce residual visual impacts. (Ex. 15, p. 229.) This measure should also be included within the project's Contingency Plan provisions. (*Ibid.*)

¹²³ Proposed alternative Transmission Line 1B for Elk Hills, as well as the transmission line proposed as part of Midway Sunset both terminate at PG&E's Midway Substation near Buttonwillow. (Ex. 15, p. 228.)

FINDINGS AND CONCLUSION

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The Midway Sunset Power Plant will be constructed in an area of existing oilfield and industrial development.
2. Construction of the Midway Sunset Power Project will add a noticeable, but not significant, industrial increment to the existing viewshed.
3. The Conditions of Certification below require the implementation of mitigation measures sufficient to minimize the visual intrusion of the Midway Sunset Power Project.
4. The Midway Sunset Power Project will not contribute to a significant adverse cumulative visual impact.

We therefore conclude that construction and operation of the Midway Sunset Power Project will not cause any significant direct, indirect, or cumulative adverse visual impacts.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to the start of commercial operation, the project owner shall treat the project structures, buildings, towers, substation and tanks visible to the public in a non-reflective finish and color to blend with the natural surroundings. The project owner shall treat the cooling towers with a heat-resistant color that minimizes contrast and harmonizes with the surrounding environment.

- The project owner shall submit a treatment plan for the project structure and equipment to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The treatment plan shall include:
 - specification, and 11 x 17 color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;
 - a detailed schedule for completion of the treatment; and,

- a procedure to ensure proper treatment maintenance for the life of the project.
- if the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall submit to the CPM a revised plan.

Protocol: After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

Verification: Not later than 30 days prior to ordering the first structures that are color treated during manufacture, the project owner shall submit its proposed plan to the CPM for review and approval. If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within one week after all pre-colored structures have been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Not less than 30 days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 Any fencing for the project shall be non-reflective.

Protocol: Prior to ordering the fencing the project owner shall submit to the CPM for review and approval the specifications for the fencing documenting that such fencing will be non-reflective.

1. If the CPM notifies the project owner that revisions of the specifications are needed before the CPM will approve the submittal, the project owner shall submit to the CPM revised specifications.
2. The project owner shall not order the fencing until the project owner receives approval of the fencing submittal from the CPM.
3. The project owner shall notify the CPM within one week after the fencing has been installed and is ready for inspection.

Verification: At least 30 days prior to ordering the non-reflective fencing, the project owner shall submit the specifications to the CPM for review and approval.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to the start of commercial operation, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to the CPM for review and approval. The lighting plan shall require that:

- a) Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary;

- b) High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance are provided with switches or motion detectors to light the area only when occupied; and
- c) A lighting complaint resolution form (following the general format of that in attachment 1) will be used by plant operations, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least 90 days before ordering the exterior lighting, the project owner shall provide the lighting plan to the CPM for review and approval. The CPM will notify the project owner of approval or disapproval within 15 days of receipt of the lighting plan. If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven days of completing exterior lighting installation that the lighting is ready for inspection. If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the landscaping that the landscaping is ready for inspection.

VIS-4 To minimize potential visual impacts, the project owner shall place all electrical transmission poles as not to be directly in front of any residences.

Protocol: Prior to construction of the transmission line, the project owner shall submit a plan to the CPM showing:

- All proposed pole locations;
- All residences within one-quarter mile of the proposed transmission route that have a view of the transmission line.

Installation of transmission line poles shall not begin before the plan is approved. The project owner shall notify the CPM when the poles have been installed and are ready for inspection.

Verification: At least 60 days prior to beginning transmission line construction, the project owner shall provide the electrical transmission pole plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

VIS-5 Prior to the start of commercial operation, the project owner shall implement a landscape plan that meets the requirements of the Kern County Zoning Code.

a) The project owner shall submit to the CPM for review and approval a specific plan describing its landscaping proposal. The project owner shall provide the CPM a letter of comment from the Kern County Planning Director stating that the landscape plan is consistent with the provisions of the Kern County General Plan and Zoning Ordinance. The plan shall include, but not be limited to:

- A detailed landscape plan, at a reasonable scale, which includes a list of proposed vegetative species and sizes and a discussion of the suitability of the plants for the site conditions and mitigation objectives;
- maintenance procedures, including any needed irrigation; and
- a procedure for replacing unsuccessful plantings.

b) If the CPM notifies the project owner that plan revisions are needed, the project owner shall prepare and submit to the CPM a revised plan for CPM approval.

- c) The vegetative plantings shall not be planted before the plan is approved. The project owner shall notify the CPM when the vegetative plantings have been planted and are ready for inspection.

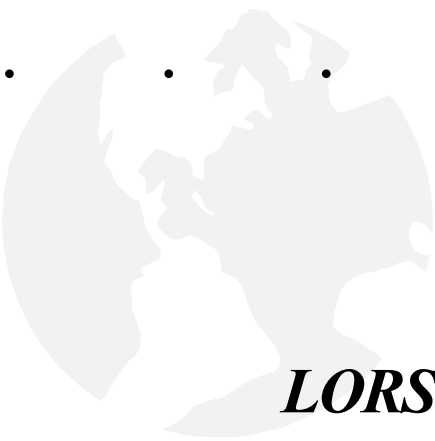
Verification: At least 90 days prior to the start of commercial operation, the project owner shall submit the proposed landscape plan to the CPM for review and approval. The CPM will respond to the project owner within 15 days of receipt of the landscaping plan.

The project owner shall submit any required revisions within 15 days of notification by the CPM. The CPM will respond to the project owner within 15 days of receipt of the revised documents. The project owner shall notify the CPM in the next Monthly Compliance Report following completion of the proposed planting that the planting is ready for inspection.

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WESTERN MIDWAY-SUNSET

Appendix A



***LORS: Laws, Ordinances,
Regulations, and Standards***

AIR QUALITY

FEDERAL

Under the Federal Clean Air Act (40 CFR 52.21), there are two major components of air pollution law, New Source Review (NSR) and Prevention of Significant Deterioration (PSD). NSR is a regulatory process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a regulatory process for evaluation of those pollutants that do not violate federal ambient air quality standards. The NSR analysis has been delegated by the Environmental Protection Agency (EPA) to the San Joaquin Valley Unified Air Pollution Control District (District). The EPA determines the conformance with the PSD regulations. The PSD requirements apply only to those projects (known as major sources) that exceed 100 tons per year for any pollutant.

STATE

The California State Health and Safety Code, section 41700, requires that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

LOCAL

The proposed project is subject to the following San Joaquin Valley Unified Air Pollution Control District rules and regulations:

RULE 2201 - NEW AND MODIFIED STATIONARY SOURCE REVIEW RULE

The main functions of the District's New Source Review Rule are to allow for the issuance of Authorities to Construct, Permits to Operate, the application of Best Available Control Technology (BACT) to new permit sources and to require the new permit source to secure emission offsets.

SECTION 4.1 - BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology is defined as: a) has been contained in any State Implementation Plan and approved by EPA; b) the most stringent emission limitation or control technique that has been achieved in practice for a class of source, or c) any other emission limitation or control technique which the District's Air Pollution Control Officer (APCO) finds is technologically feasible and is cost effective. BACT will apply to any air pollutant that results in an emissions increase of two pounds per day. In the case of the Western MSCC project, BACT will apply for NOx, SO2, PM10, VOC and CO emissions from all point sources of the project.

SECTION 4.2 - OFFSETS

Emissions offsets for new sources are required when those sources exceed the following emissions levels:

- Sulfur oxides - 150 lbs/day
- PM10 - 80 lb./day
- Oxides of nitrogen - 10 tons/year
- Volatile organic compounds - 10 tons/year
-

The Western MSCC project exceeds all of the above emission levels; therefore offsets are required for all four of these pollutants. The emission offsets provided shall be adjusted according to the distance of the offsets from the Western MSCC.

The ratios are:

- Within 15 miles of the same source - 1.2 to 1
- 15 miles or more from the source - 1.5 to 1

Section 4.2.5.3 allows for the use of interpollutant offsets (including PM10 precursors for PM10) on a case-by-case basis, provided that the applicant demonstrates that the emissions increase will not cause a violation of any ambient air quality standard. The ratio for interpollutant trading shall be based on an air quality analysis and shall be equal to or greater than the minimum offsetting requirements (the distance ratios) of this rule.

SECTION 4.3 - ADDITIONAL SOURCE REQUIREMENTS

Rule 4.3.2.1 requires that a new source not cause, or make worse, the violation of an ambient air quality standard as demonstrated through analysis with air dispersion models.

RULE 2520 — FEDERALLY MANDATED OPERATING PERMITS

Rule 2520 requires that a project owner file a Title V Operating Permit with the District within 12 months of commencing operation. A project is subject to this requirement if any of the following apply: the project is a major stationary source (under PSD definitions), it has the potential to emit greater than 100 tons per year of a criteria pollutant, that any equipment is subject to New Source Performance Standards, the project is subject to Title IV Acid Rain program, or the applicant is required to obtain a PSD permit from EPA. The Title V permit application requires that the owner submit information on the operation of the air polluting equipment, the emission controls, the quantities of emissions, the monitoring of the equipment as well as other information requirements.

RULE 2540 — ACID RAIN PROGRAM

Rule 2540 requires that a project greater than 25 MW and installed after November 15, 1990, must submit an acid rain program permit application to the District. The acid rain requirements will become part of the Title V Operating Program (Rule 2520). The specific requirements for the Western MSCC project will be discussed in the Compliance with LORS — Local later in this analysis.

RULE 4001 - NEW SOURCE PERFORMANCE STANDARDS

Rule 4001 specifies that a project must meet the requirements of the Federal New Source Performance Standards (NSPS) specified in Title 40, Code of Federal Regulations, Part 60, Chapter 1. Subpart GG, which pertains to Stationary Gas Turbines, requires that NO_x concentrations are a function of the heat rate of the combustion, which in this case would be approximately 116 ppmv at 15% O₂. In addition, the SO₂ concentration shall be less than 150 ppmv and the sulfur content of the fuel shall no greater than 0.8 percent by weight.

RULE 4101 - VISIBLE EMISSIONS

Rule 4101 prohibits air emissions, other than water vapor, of more than Ringelmann No. 1 (20 percent opacity) for more than 3 minutes in any one hour.

RULE 4201 - PARTICULATE MATTER CONCENTRATION

Rule 4201 limits particulate emissions from sources such as the gas turbines, cooling towers and emergency fire water pumps to less than 0.1 grain per cubic foot of exhaust gas at dry conditions.

RULE 4202 — PARTICULÆ MATTER EMISSION RATE

Limits hourly particulate emissions based on the process rate of the process. Combustion of gaseous and liquid fuels are excluded from this rule, however the particulate emissions associated with the cooling tower are subject to the emission limits of this rule.

RULE 4703 - STATIONARY GAS TURBINES

Rule 4703 limits NO_x concentrations to 12.2 ppm for the SCR controlled turbines and 21 ppm for the SCONO_x controlled turbine. In addition there is a limit in CO concentrations of less than 200 ppm.

RULE 4801 - SO₂ CONCENTRATION

Rule 4801 limits the SO₂ concentration emitted into the atmosphere to no greater than 0.2 percent by volume.

RULE 8010 - FUGITIVE DUST ADMINISTRATIVE REQUIREMENTS FOR CONTROL OF FINE PARTICULATE MATTER (PM-10)

Rule 8010 specifies the types of chemical stabilizing agents and dust suppressant materials that can (and cannot) be used to minimize fugitive dust.

RULE 8020 - FUGITIVE DUST REQUIREMENTS FOR CONTROL OF FINE PARTICULATE MATTER (PM-10) FROM CONSTRUCTION, DEMOLITION, EXCAVATION, AND EXTRACTION ACTIVITIES

Rule 8020 requires that fugitive dust emissions during construction activities be limited to no greater than 40 percent opacity by means of water application or chemical dust suppressants. The rule also encourages the use of paved access aprons, gravel strips, wheel washers or other measures to limit mud or dirt carry-out onto paved public roads.

RULE 8030 - CONTROL OF PM10 FROM HANDLING AND STORAGE OF BULK MATERIALS

Rule 8030 limits the fugitive dust emissions from the handling and storage of materials. It specifies that bulk materials be transported using wetting agents, allow appropriate freeboard space in the vehicles, or be covered. It also requires that stored materials be covered or stabilized.

RULE 8060 - CONTROL OF PM10 FROM PAVED AND UNPAVED ROADS

Rule 8060 specifies the width of paved shoulders on paved roads or the use of chemical dust suppressants on unpaved roadways, shoulders and medians.

RULE 8070 - CONTROL OF PM10 FROM VEHICLE/EQUIPMENT PARKING, SHIPPING, RECEIVING, TRANSFER, FUELING AND SERVICE AREAS

Rule 8070 is intended to limit fugitive dust from unpaved parking areas by means of using water or chemical dust suppressants or the use of gravel. It also requires that the affected owners/operators remove mud and dirt that has been tracked onto public roadways once a day.

BIOLOGICAL RESOURCES

FEDERAL

CLEAN WATER ACT OF 1977

Title 33, United States Code, sections 1251 — 1376, and Code of Federal Regulations, part 30, section 330.5(a)(26).

ENDANGERED SPECIES ACT OF 1973

Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq., designate and provide for protection of threatened and endangered plant and animal species, and their critical habitat.

MIGRATORY BIRD TREATY ACT

Title 16, United States Code, sections 703 - 712, prohibits the take of migratory birds.

STATE

CALIFORNIA ENDANGERED SPECIES ACT OF 1984

Fish and Game Code sections 2050 et seq. protects California s rare, threatened, and endangered species.

NEST OR EGGS — TAKE, POSSESS, OR DESTROY

Fish and Game Code section 3503 protects California s birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs or any bird.

BIRDS OF PREY OR EGGS — TAKE, POSSESS, OR DESTROY

Fish and Game Code section 3503.5 protects California s birds of prey and their eggs by making it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

MIGRATORY BIRDS — TAKE OR POSSESSION

Fish and Game Code section 3513 protects California s migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird.

FULLY PROTECTED SPECIES

Fish and Game Code sections 3511, 4700, 5050, and 5515 prohibits take of animals that are classified as Fully Protected in California.

SIGNIFICANT NATURAL AREAS

Fish and Game Code section 1930 et seq. designates certain areas such as refuges, natural sloughs, riparian areas and vernal pools as significant wildlife habitat.

NATIVE PLANT PROTECTION ACT OF 1977

Fish and Game Code section 1900 et seq. designates state rare, threatened, and endangered plants.

CALIFORNIA CODE OF REGULATIONS

Title 14, sections 670.2 and 670.5 list animals of California designated as threatened or endangered.

LOCAL

KERN COUNTY GENERAL PLAN LAND USE, OPEN SPACE, AND CONSERVATION ELEMENTS OF 1994

SECTION 8, RESOURCES

Policy 14: Habitats of threatened and endangered species should be protected to the greatest extent possible.

KERN COUNTY GENERAL PLAN ENERGY ELEMENT OF 1990

PART 1 - ISSUES, GOALS, POLICIES, AND IMPLEMENTATION

Policy 12 - The County should work closely with local, state, and federal agencies to assure that all projects, both discretionary and ministerial, avoid or minimize direct impacts to fish, wildlife and botanical resources, whenever practical.

Policy 13 - The County should develop and implement measures that result in long-term compensation for wildlife habitat that is unavoidably damaged by energy exploration and development activities.

CULTURAL

Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, Section 431 et seq.) and subsequent related legislation, policies, and enacting responsibilities, e.g., federal agency regulations and guidelines for implementation of the Antiquities Act. The following laws, ordinances, regulations, standards, and policies apply to the protection of cultural resources in California. Projects licensed by the Energy Commission are reviewed to ensure compliance with these laws.

FEDERAL

- National Environmental Policy Act (NEPA): Title 42, United States code, section 4321-et seq., requires federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.
- Federal Land Policy and Management Act (FLPMA): Title 43, USC, section 1701 et seq., requires the Secretary of the Interior to retain and maintain public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water resource, and archeological values [Section 1701(a)(8)]; the Secretary, with respect to the public lands, shall promulgate rules and regulations to carry out the purposes of this Act and of other laws applicable to public lands [Section 1740].
- Federal Register 44739-44738, 190 (September 30, 1983): Federal Guidelines for Historic Preservation Projects: The US Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California.
- National Historic Preservation Act, 16 USC 470, commonly referred to as Section 106, requires federal agencies to take into account the effects of their undertakings on historic properties through consultations beginning at the early stages of project planning. Regulations revised in 1997 (36 CFR Part 800 et. seq.) set forth procedures to be followed for determining eligibility for nomination, the nomination, and the listing of cultural resources in the National Register of Historic Places (NRHP). The eligibility criteria and the process are used by federal, state, and local agencies in the evaluation of the significance of cultural resources. Very similar criteria and procedures are used by the state in identifying cultural

resources eligible for listing in the State Register of Historic Resources. Recent revisions to Section 106 in 1999 emphasized the importance of Native American consultation.

- Executive Order 11593, Protection of the Cultural Environment, May 13, 1971 (36 Federal Register 8921) orders the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values.
- American Indian Religious Freedom Act; Title 42, United States Code, Section 1996 protects Native American religious practices, ethnic heritage sites, and land uses.
- Native American Graves Protection and Repatriation Act (1990); Title 25, United States Code Section 3001, et seq. Defines cultural items, sacred objects, and objects of cultural patrimony; establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items.

STATE

- Public Resources Code, Section 5020.1 defines several terms, including the following:
 - (j) historical resource includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.
 - (q) substantial adverse change means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.
- Public Resources Code, Section 5024.1 establishes a California Register of Historical Resources; sets forth criteria to determine significance; defines eligible properties; and lists nomination procedures.
- Public Resources Code, Section 5097.5 states that any unauthorized removal or destruction of archaeologic or paleontologic resources on sites located on public land is a misdemeanor. As used in this section, public lands means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

- Public Resources Code, Section 5097.98 defines procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials.
- Public Resources Code, Section 5097.99 prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.
- Public Resources Code, Section 5097.991 states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.
- Public Resources code, Section 21000, et seq, California Environmental Quality Act (CEQA) This act requires the analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.
- Public Resources Code, Section 21083.2 states that if a project may affect a resource that has not met the definition of an historical resource set forth in section 21084, then the lead agency may determine whether a project may have a significant effect on unique archaeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, such resources must be avoided; if they can not be avoided mitigation measures shall be required. The law also discusses excavation as mitigation; discussed the costs of mitigation for several types of projects; sets time frames for excavation; defines unique and non-unique archaeological resources; provides for mitigation of unexpected resources; and sets financial limitations for this section.
- Public Resources Code, Section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a historic resource and describes what constitutes a significant historic resource.
- CEQA guidelines, Title 14, California Code of Regulations, Section 15126.4 Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects sub-section (b) discusses impacts of maintenance, repair, stabilization, restoration, conservation, or reconstruction of a historical resource. Subsection (b) also discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.
- CEQA Guidelines, Title 14, California Code of Regulation, Section 15064.5 Determining the Significance of Impacts to Archaeological and Historical Resources . Subsection (a) defines the term historical

resources. Subsection (b) explains when a project may be deemed to have a significant effect on historical resources and defines terms used in describing those situations. Subsection (c) describes CEQAs applicability to archaeological sites and provides a bridge between the application of the terms historical resources and a unique archaeological resource.

- CEQA Guidelines, Title 14 California Code of Regulations, Section 15064.7 Thresholds of Significance. This section encourages agencies to develop thresholds of significance to be used in determining potential impacts and defines the term cumulatively significant.
- CEQA Guidelines, Appendix G Issue V: Cultural Resources. Lists four questions to be answered in determining the potential for a project to impact archaeological, historic, and paleontologic resources.
- California Penal Code, Section 622.5. Anyone who willfully damages an object or thing of archaeological or historic interest can be found guilty of a misdemeanor.
- California Health and Safety Code, Section 7050.5. If human remains are discovered during construction, the project owner is required to contact the county coroner.
- Public Resources Code, Section 5097.98. If the county coroner determines that the remains are Native American, the coroner is required to contact the Native American Heritage Commission, which is then required to determine the Most Likely Descendant to inspect the burial and to make recommendations for treatment or disposition of the remains and any associated burial items.
- Government Code, Section 6254.10. Nothing in this chapter requires disclosure of records that relate to archeological site information maintained by the Department of Parks and Recreation, the State Historical Resources Commission, or the State Lands Commission.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulation, standards, plans, and policies.

KERN COUNTY

Kern County staff have previously indicated that they do not have a specific county policy that addresses cultural resources, but they do ensure compliance with CEQA for most projects (Forrest 1999).

FACILITY DESIGN

The applicable LORS for each engineering discipline, civil, structural, mechanical and electrical, are included in the application as part of the engineering appendices, Appendices C through H, and summarized in Section 7, Table 7-1 (Midway 1999a). A summary of these LORS includes: Title 24, California Code of Regulations, which adopts the current edition of the California Building Code (CBC) as minimum legal building standards; the 1998 CBC for design of structures; American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code; and National Electrical Manufacturers Association (NEMA) standards.

GEOLOGY AND PALEONTOLOGY

The applicable LORS are listed in the AFC, in Sections 5.3, 5.5, and 5.8, (Midway 1999a). A brief description of the LORS for geological hazards and resources, surface water hydrology and paleontological resources follows:

FEDERAL

There are no federal LORS for geological hazards and resources, or grading and erosion control other than the requirement by the Bureau of Land Management (BLM) for an excavation permit for excavations and grading. Since the proposed water line route and the electric transmission line corridor cross lands under the jurisdiction of the federal government (BLM), both the Federal Land Planning Management Act and the National Environmental Policy Act apply to the management of paleontological resources on the lands under the jurisdiction of the BLM.

STATE AND LOCAL

The California Building Code (CBC) 1998 edition is based upon the Uniform Building Code (UBC), 1997 edition, which was published by the International Conference of Building Officials. The CBC is a series of standards that are used in the investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). The CBC supplements the UBC's grading and construction ordinances and regulations.

The California Environmental Quality Act (CEQA) Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

- Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.
- Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geological hazards.
- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

The Standard Procedures, Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources (SVP 1994) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by a national organization of vertebrate paleontologists (the Society of Vertebrate Paleontologists).

HAZARDOUS MATERIALS MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III and Clean Air Act of 1990 established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The SARA Act (codified in 40 C. F. R.,/ 68.110 et seq.) requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of these Acts are reflected in the California Health and Safety Code, section 25531 et seq.

STATE

The California Health and Safety Code, section 25534, directs facility owners, storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

Title 8, California Code of Regulations, Section 5189, requires facility owners to develop and implement effective safety management plans to insure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

Title 8, California Code of Regulations, Section 458 and Sections 500 — 515, set forth requirements for design, construction and operation of vessels and equipment used to store and transfer anhydrous ammonia. These sections generally codify the requirements of several industry codes, including the ASME Pressure Vessel Code, ANSI K61.1 and the National Boiler and Pressure Vessel Inspection Code. While these codes apply to anhydrous ammonia, they may also be used to design storage facilities for aqueous ammonia.

California Health and Safety Code, section 41700, requires that No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort,

repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest revision to Article 80 was in 1997 (UFC, 1997). These articles contain minimum setback requirements for outdoor storage of ammonia.

The California Building Code contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official (CBO) must inspect and verify compliance with these requirements prior to issuance of an occupancy permit. A further discussion of these requirements is provided in the **Facility Design** portion of this document.

LAND USE

KERN COUNTY GENERAL PLAN

The general plan is the legal document that acts as a constitution for land use and development in Kern County. It consists of the seven mandatory elements: land use, circulation, open space, conservation, housing, safety and seismic safety, and noise; and four optional elements: recreation, energy, hazardous waste management, and public services and facilities (Kern County 1994). The following land use designations of the Kern County General Plan are specific to the proposed project.

LAND USE DESIGNATIONS

NONJURISDICTIONAL LAND

State and Federal Land - All property under the ownership and control of various state and federal agencies.

RESOURCE

Intensive Agriculture

Applies to areas devoted to the production of irrigated crops or having the potential for such use. Other agricultural uses may be consistent with the intensive agriculture designation. Minimum parcel size is 20 acres gross. Permitted uses include, but are not limited to:

- Primary: irrigated cropland, orchards, vineyards, ranch and farm facilities, etc.; one single-family dwelling unit.
- Compatible: livestock grazing, water storage, mineral and petroleum exploration and extraction, and public utility uses, etc., pursuant to provisions of the Zoning Ordinance.

Extensive Agriculture

Applies to agricultural uses involving large amounts of land with relatively low value-per-acre yields. Minimum parcel size is 20 acres gross, except lands under Williamson Act Contract, in which case the minimum parcel size shall be 80 acres gross. Permitted uses include, but are not limited to:

- Primary: livestock grazing, dry land farming, ranching facilities, wildlife and botanical preserves, timber harvesting, etc.; one single-family dwelling unit.
- Compatible: irrigated croplands, water storage or ground water extraction, recharge areas, mineral and petroleum exploration, recreational activities, etc.

Mineral and Petroleum

Applies to areas, which contain producing, or potentially productive, petroleum fields and mineral deposits. Uses are limited to activities directly associated with resource extraction. Minimum parcel size is 5 acres gross. Permitted uses include, but are not limited to:

- Primary: mineral and petroleum exploration and extraction.
- Compatible: extensive and intensive agriculture, mineral and petroleum processing, pipelines, power transmission facilities, communication facilities, equipment storage yards, and one single-family dwelling unit (subject to a Conditional Use Permit).

PHYSICAL CONSTRAINTS

Includes overlay zones denoting physical constraints. Those applicable include:

- Steep Slopes: Land with an average slope of 30 percent or steeper.
- Flood Hazard: Based on the Flood Hazard Boundary Maps of the US Department of Housing and Urban Development and the Kern County Water Agency. These areas include, for example, flood channels and watercourses, riverbeds, and gullies. Development within these areas is subject to review by the County and will include conformity with adopted ordinances.

SPECIAL TREATMENT AREAS

These are areas for which area-wide land use plans have been prepared or approved. They include both Accepted County Plan Areas and Rural Community plans:

- Accepted County Plan Areas: Specific land use areas for which plans have been prepared and approved.
- Rural Community: Settlements in the County that have individual character and are recognized as unique communities meriting Specific Plan level of detail.

The following tables indicate the Kern County General Plan land use designations and existing land uses of the proposed project and transmission line corridors.

GENERAL PLAN LAND USE DESIGNATIONS WITHIN THE STUDY AREA

The existing general plan land use designations for the facility are represented in **LAND USE Table 1**.

LAND USE Table 1

Location or Linear Facility	Land Use Designation
Western MSCC Power Plant site	Mineral and Petroleum
Route 1 (R1)Transmission Line	Mineral and Petroleum/Extensive Agriculture/Intensive Agriculture
Route 2 (R2) Water Supply Pipeline	Mineral and Petroleum

EXISTING LAND USES WITHIN THE STUDY AREA

The existing land uses for the facility are represented in **LAND USE Table 2**.

LAND USE Table 2

Location or Linear Facility	Existing Land Uses
Western MSCC Power Plant site	Undeveloped/Oil Field
Route 1 (R1)Transmission Line	Undeveloped/Oil Field/BLM Lands/CDFG Lands/Calif. Aqueduct/Levee/Flood Canal/Agriculture
Route 2 (R2) Water Supply Pipeline	Undeveloped/Oil Field/BLM Lands

LAND USE PLANS AND POLICIES RELATED TO WESTERN MSCC

The following provisions of the Kern County General Plan, McKittrick Rural Community Plan, Buttonwillow Community Development Plan, U.S. Fish and Wildlife Service, and Caliente Resource Management Plan are specific to the proposed project. Please refer to the **Socioeconomic Resources** and **Noise** sections of the Preliminary Staff Assessment (PSA) for a discussion of the applicable policies of the Kern County General Plan in these technical areas. Please refer to the **Biological Resources** section of the PSA for a discussion of the applicable policies of the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

NONJURISDICTIONAL LAND

- Coordination and cooperation will be promoted among the County, the incorporated cities and the various special districts where their planning decisions and actions affect more than a single jurisdiction (Policy No. 1).
- Land under state and federal jurisdiction will be considered as land designated for Resource Management on the General Plan map (Policy No. 4).

PHYSICAL CONSTRAINTS

- Kern County will not permit new developments to be sited on land that is environmentally unsound to support such development (Policy No. 1).
- Development will not be allowed in natural hazard areas pending the adoption of ordinances that establish conditions, criteria and standards in order to minimize risk to life and property posed by those risks (Policy No. 2).
- Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas (Policy No. 3).
- New development will not be permitted in areas of landslide or slope instability as designated in the Safety and Seismic Safety Element of the General Plan, and as mapped on the Kern County Seismic Hazard Atlas (Policy No. 6).
- Regardless of percentage of slope, development on hillsides will be sited in the least obtrusive fashion, thereby minimizing the extent of topographic alteration required (Nonjurisdictional Land - Policy No. 1, p. 1 - Policy No. 9)
- Development proposed in areas with steep slopes will be reviewed for conformity to the adopted Hillside Development Ordinance to ensure that appropriate stability, drainage, and sewage treatment will result (Policy No. 10).
- Designated flood channels and watercourses, such as creeks, gullies, and riverbeds will be preserved as resource management areas or, in the case of the urban areas, as linear parks (Policy No. 12).
- New development will be required to demonstrate the availability of adequate fire protection and suppression facilities (Policy No. 13).
- Kern County will evaluate the potential noise impacts of any development-siting action or of any applications it acts upon that could significantly alter noise levels in the community and will require mitigative measures where significant adverse effects are identified (Policy No. 14).
- The air quality effects of a proposed land use will be considered when evaluating development proposals (Physical Constraints - Policy No. 15, p. 2-3).
- Kern County will disapprove projects found to have significant adverse effects on Kern County's air quality, unless the Board of Supervisors, Board of Zoning Adjustment, or the Director of Planning and Development Services, acting as Hearing Officer or Parcel Map Advisory Agency makes findings under CEQA (Policy No. 16).

SPECIAL TREATMENT AREAS

- In areas designated Specific Plan Required with more than one owner, the interim designations will reflect the existing zoning pattern until the County prepares and adopts a Specific Plan (Policy 3(b)).

RESOURCE

- Areas designated agricultural use, which include Class I and II agricultural soils with surface water delivery systems will be protected against residential and commercial subdivision and development activities (Policy No. 1).
- Areas identified by the Soil Conservation Service as having high range-site value will be reserved for extensive agricultural use or as resource reserves if located within a County water district (Policy No. 2).
- In areas with a Resource designation on the General Plan map, only industrial activities which directly and obviously relate to the exploration, production, and transportation of the particular resource will be considered to be consistent with this plan (Policy No. 4).
- Development will be constrained, pending adoption of ordinances, which establish conditions, criteria, and standards, in areas containing valuable resources in order to protect the access to and economic use of these resources (Policy No. 9).
- Rivers and streams in the County are important visual and recreational resources and wildlife habitats. Areas of riparian vegetation along rivers and streams will therefore be preserved when feasible to do so (Policy No. 11).
- The County will maintain and enhance air quality for the health and well being of County residents by encouraging land uses which promote air quality and good visibility (Policy No. 13).
- Habitats of threatened or endangered species should be protected to the greatest extent possible (Policy No. 14).
- Management which are presently under Williamson Act Contracts will have a minimum parcel size of 80 acres until such time as a contract expires or is canceled, at which time the minimum parcel size will become 20 acres (Policy No. 15).

GENERAL PROVISIONS

- Prior to issuance of any development or use permit, the County shall make the finding, based on information provided by California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development. The developer shall

assume full responsibility for costs incurred in service extensions or improvements that are required as a result of the proposed project (Policy No. 3).

- The air quality implications of new development will be considered in approval of major developments or area wide land use designations (Policy No. 15).
- The County will promote the preservation of designated historic buildings and the protection of cultural resources which provide ties with the past and constitute a heritage value to residents and visitors (Policy No. 16).
- Maintain the County's inventory of areas of potential cultural and archaeological significance (Implementation G).

McKITTRICK RURAL COMMUNITY PLAN

The McKittrick Rural Community Plan has been developed using the criteria, goals, policies, and implementing ordinances of the Kern County General Plan. Programs and document framework for the McKittrick Plan are the same as those used in the Kern County General Plan.

BUTTONWILLOW COMMUNITY DEVELOPMENT PLAN

Open Space

- Encourage continuing dual use of transmission line easements as open space or possibly greenbelt areas (Implementation P. 23).
- Continuance of land use contracts under the provisions of the Williamson Act and maintenance of the A (Exclusive Agricultural) zoning classification for agricultural lands (Implementation, P. 25).
- Encourage continuance of land use contracts under the provisions of the California Land Conservation Act of 1965, as amended, and commonly referred to as The Williamson Act (Implementation, P. 30).

ENERGY ELEMENT OF THE KERN COUNTY GENERAL PLAN

- The County shall encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards (Policy No. 1).
- The County shall review proposed transmission lines and their alignments for conformity with the Land Use Element of the Kern County General Plan (Policy No. 2).

- In reviewing proposals for new transmission lines and/or capacity, the County shall assert a preference for upgrade of existing lines and use of existing corridors where feasible (Policy No. 3).
- The County shall work with other agencies in establishing routes for proposed transmission lines (Policy No. 4).
- The County shall discourage the siting of above ground transmission lines in visually sensitive areas (Policy No. 5).
- The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors (Policy No. 6).
- The County should monitor the supply and demand of electrical transmission capacity locally and statewide (Implementation A).
- The County shall continue to maintain provisions in the Zoning Ordinance and update as necessary to provide for transmission line development (Implementation B).

KERN COUNTY ZONING CODE

The Kern County Zoning Ordinance was adopted in July 1997. The ordinance implements the Kern County General Plan by applying development standards and construction requirements on land as it is developed within the unincorporated areas of the county. The following divisions of the Kern County Zoning Ordinance apply to the project.

ZONING DISTRICTS

EXCLUSIVE AGRICULTURE (A)

Areas that are suitable for agricultural uses. This designation is designed to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to non-agricultural uses. Permitted uses in the A District are limited primarily to agriculture and other activities compatible with agriculture.

LIMITED AGRICULTURE (A-1)

Areas that are suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses.

The following table indicates the Kern County zoning designations of the proposed project and linear corridors.

LAND USE Table 3

Location or Linear Facility	Zoning Designations
Western MSCC Power Plant Site	Exclusive Agriculture (A)
Route 1 (R1)Transmission Line	Exclusive Agriculture (A)/Limited Agriculture (A-1),
Route 2 (R2) Water Supply Pipeline	Exclusive Agriculture (A),

These chapters of the Kern County Zoning Ordinance also apply to the project: Section 19.80.30 of Chapter 19.80 (Special Development Standards — Commercial and Industrial Districts); Section 19.82.090 of Chapter 19.82 (Offstreet Parking - Design and Development Standards); and Section 19.86.060 of Chapter 19.86 (Landscaping Standards — Industrial Uses).

NOISE

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. /651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. /1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise exposure levels as a function of the amount of time that the worker is exposed. The regulations further specify a hearing conservation program that involves: monitoring the noise to which workers are exposed; assuring that workers are made aware of overexposure to noise; and periodically testing the workers hearing to detect any degradation.

There are no federal laws governing offsite (community) noise.

STATE

California Government Code Section 65302(f) encourages each local government entity to perform noise studies and implement a noise element as part of their General Plan. In addition, California Code of Regulations, Title 4, has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The State land use compatibility guidelines are listed in Table 1.

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Table 1 Land Use Compatibility for Community Noise Environment

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE - Ldn or CNEL (db)											
	50	55	60	65	70	75	80					
Residential - Low Density Family, Duplex, Mobile Home												
Residential - Multi-Family												
Transient Lodging - Motel, Hotel												
Schools, Libraries, Churches Hospitals, Nursing Homes												
Auditorium, Concert Amphitheaters												
Sports Arena, Outdoor Sports Sports												
Playgrounds, Neighborhood Parks												
Golf Courses, Riding Sports Water Recreation, Cemeteries												
Office Buildings, Business Commercial and Professional												
Industrial, Manufacturing, Utilities, Agriculture												
	Normally Acceptable Specified land use is satisfactory, based upon the assumption that normal conventional construction, without any special noise insulation is required.											
	Conditionally Acceptable New construction or development should be undertaken only after noise reduction requirements is made and needed noise insulation design.											
	Normally Unacceptable New construction or development should be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements and noise insulation features included in the design.											
	Clearly Unacceptable New construction or development generally should not be undertaken.											

Source: State of California General Plan Guidelines, Office of Planning and Research, June 1990

Other State LORS include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Administration (Cal-OSHA) regulations.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3) require that the lead agency disclose all potentially significant impacts associated with the proposed project. Specifically, a significant effect from noise may exist if a project would result in:

- a) Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies.
- b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels.
- c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project .

CAL-OSHA

Cal-OSHA has promulgated Occupational Noise Exposure Regulations (California Code of Regulations, Title 8, § 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards (see **NOISE: Appendix A, Table A4**).

LOCAL

KERN COUNTY GENERAL PLAN NOISE ELEMENT

Two policies in the Kern County General Plan Noise Element are applicable to construction and operation of the proposed project (Kern County, 1989). Policy (5) (a) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce exterior noise levels to 65 dB L_{dn} or less. Policy (5) (b) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into project design to reduce interior noise levels within living spaces or other noise sensitive interior spaces to 45 dB L_{dn} or less. Table 2 lists the established maximum desired ambient noise levels in Kern County as presented in the County's Noise Element. It should be noted that there are no current noise ordinances in Kern County.

Table 2 Maximum Desired Ambient Noise Levels

Land Use Category	L₅₀ (Day)	L₅₀ (Night)	L_{dn} (CNEL)
Insensitive Uses	65	60	75
Moderately Sensitive Uses	60	55	70
Sensitive Uses	55	45	65
Highly Sensitive Uses	50	40	60

Source: Kern County General Plan, Noise Element, December 1989

POWER PLANT EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

POWER PLANT RELIABILITY

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation.

PUBLIC HEALTH

FEDERAL

The Clean Air Act of 1970 (42 U.S.C., section 7401 et seq.) required establishment of ambient air quality standards to protect the public from the effects of air pollutants. These standards have been established by the United States Environmental Protection Agency (EPA) for the major air pollutants: nitrogen dioxide, ozone, sulfur dioxide, carbon monoxide, sulfates, particulate matter with a diameter of 10 micron or less (PM10) and lead.

STATE

California Health and Safety Code section 39606 requires the California Air Resources Board (CARB) to establish California's ambient air quality standards to reflect the California-specific conditions that influence its air quality. Such standards have been established by the CARB for ozone, carbon monoxide, sulfur dioxide, PM10, lead, hydrogen sulfide, vinyl chloride and nitrogen dioxide. The same biological mechanisms underlie some of the health effects of most of these criteria pollutants as well as the noncriteria pollutants. The California standards are listed together with the corresponding federal standards in the **Air Quality** section.

California Health and Safety Code section 41700 states that No person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have a natural tendency to cause injury or damage business or property.

The California Health and Safety Code section 39650 et seq. mandates that the California Environmental Protection Agency (Cal-EPA) establish safe exposure limits for toxic, noncriteria air pollutants and identify the best available methods for their control. These laws also require that the new source review rules for each air district include regulations establishing procedures to control the emission of these pollutants. The toxic emissions from natural gas combustion are listed in ARB's April 11, 1996 California Toxic Emissions Factors (CATEF) database for natural gas-fired combustion turbines. Cal-EPA has developed specific cancer potency estimates for assessing their related cancer risks at specific exposure levels. For noncancer-causing toxic air pollutants, Cal-EPA established specific no-effects levels (known as reference exposure levels, or RELs) for assessing the likelihood of producing health effects at specific exposure levels. Such health effects would be considered significant only when exposure exceeds these reference levels. The Energy Commission staff (staff) uses these Cal-EPA potency estimates and reference exposure values in its health risk assessments.

California Health and Safety Code section 44300 et seq. requires facilities, which emit large quantities of criteria pollutants and any amount of noncriteria pollutants to provide the local air district an inventory of toxic emissions. Such facilities may also be required to prepare a quantitative health risk assessment to address the potential health risks involved. CARB and the Air Quality Management District will ensure implementation of these requirements for the proposed project.

LOCAL

The San Joaquin Unified Air Pollution Control District (SJUAPCD, or the District) has no specific rules implementing Health and Safety Code section 44300. It does, however, require the results of a health risk assessment as part of the application for the Determination of Compliance. Midway Sunset Cogeneration Company (MSCC) has complied with this requirement.

SOCIOECONOMICS

FEDERAL

Executive Order 12898, Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations focuses federal attention on the environment and human health conditions of minority communities and directs agencies to achieve EJ as part of this mission. The Executive Order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this problem. Agencies are required to identify and address any disproportionately high and/or adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations. The Energy Commission receives federal funds and is thus subject to this Executive Order.

STATE

CALIFORNIA GOVERNMENT CODE, SECTION 65955-659973

California Government Code Section 65955-659973 places levies against development projects near school districts. The administering agency is Kern County.

CALIFORNIA GOVERNMENT CODE, SECTION 65996-65997

As amended by SB 50 Stats. 1998, ch. 407, Sec. 23, states that public agencies may not impose fees, charges or other financial requirements to offset the cost for school facilities.

LOCAL

Kern County General Plan - Public facilities component pertinent to socioeconomics.

(Policy No. 8) In evaluating a development application, Kern County will consider impacts on the local school districts.

(Implementation E) Determine the local cost of facility and infrastructure improvements and expansion that are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the time of approval of the Final Map.

SOIL AND WATER RESOURCES

FEDERAL

CLEAN WATER ACT

The Clean Water Act (33 USC / 1251), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States.

Section 401 of the Act requires that any applicant for a federal permit to conduct any activity, including the construction or operation of a facility, which may result in the discharge of any pollutant, must obtain certification of those activities from the state in which the discharge originates. For the WMSCC Project, any activity that occurs within the bed and banks of a watercourse will be subject to 401 certification by the Central Valley Regional Water Quality Control Board (RWQCB).

The Clean Water Act requires states to set standards to maintain, restore, and protect water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated through requirements under Section 402 of the Clean Water Act. Section 402(p) established the National Pollutant Discharge Elimination System (NPDES) permitting program for stormwater and incidental non-stormwater discharges from construction activities that disturb five (5) or more acres of soil. The NPDES program is administered by the U.S. Environmental Protection Agency (EPA); and, in California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCB). Stormwater discharges

during construction and operation of a facility are addressed through a General Construction Activity and Industrial Activity NPDES permits.

Section 402 of the Clean Water Act regulates the discharge of fill or dredged material into waters of the United States, including rivers, streams, and wetlands. Such discharges are covered under Section 404 of the Clean Water Act. The Section 404 permit program is administered by the U.S. Army Corps of Engineers (ACOE).

STATE

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the State Water Resources Control Board (SWRCB) and

the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for the project area are contained in the Water Quality Control Plan for the Tulare Lake Basin (1995). The Porter-Cologne Water Quality Control Act also requires the SWRCB and the nine RWQCBs to ensure the protection of water quality through the regulation of waste discharges. Such discharges are regulated under Title 23, California Code of Regulations, Chapter 9, Division 3. The proposed project will receive a Waste Discharge Requirement from the Central Valley Regional Water Quality Control Board for the stormwater runoff pond.

CALIFORNIA DEPARTMENT OF FISH AND GAME STREAMBED ALTERATION PROGRAM

The Department of Fish and Game is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. Section 1600 of the Fish and Game Code requires notification to the Department before beginning a project that may impact a river, stream, or lake. If the Department determines that the project may adversely affect existing fish and wildlife resources, a Lake or Streambed Alteration Agreement is required (CA Dept. of Fish and Game, 2000).

LOCAL

KERN COUNTY CODE OF BUILDING REGULATIONS GRADING CODE

Chapter 17.28 sets forth rules and regulations to control excavation, grading, and earthwork construction, including fills and embankments; establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of grading construction (Kern County, 2000). The grading required for the project will exceed 2,000 cubic yards; therefore, the Applicant needs to comply with Engineered Grading Requirements under 17.28.070 Grading Permit Requirements.

TRAFFIC AND TRANSPORTATION

FEDERAL

Title 49, Code of Federal Regulations, Sections 171-177, governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.

Title 49, Code of Federal Regulations, Sections 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

The California Vehicle Code and the Streets and Highways Code contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials and rights-of-way. In addition, the California Health and Safety Code addresses the transportation of hazardous materials.

Provisions within the California Vehicle Code are:

- Section 353 defines hazardous materials. California Vehicle Code, Sections 31303-31309, regulates the highway transportation of hazardous materials, the routes used, and restrictions thereon.
- Sections 31600-31620 regulate the transportation of explosive materials.
- Sections 32000-32053 regulate the licensing of carriers of hazardous materials and include noticing requirements.
- Sections 32100-32109 establish special requirements for the transportation of inhalation hazards and poisonous gases.
- Sections 34000-34121 establish special requirements for the transportation of flammable and combustible liquids over public roads and highways.
- Sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5-7, 34506, 34507.5 and 34510-11 regulate the safe operation of vehicles, including those which are used for the transportation of hazardous materials.
- Sections 25160 et seq. address the safe transport of hazardous materials.
- Sections 2500-2505 authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.
- Sections 13369, 15275, and 15278 address the licensing of drivers and the classifications of licenses required for the operation of particular types

of vehicles. In addition, the possession of certificates permitting the operation of vehicles transporting hazardous materials are required.

- California Streets and Highways Code, Sections 117 and 660-72, and California Vehicle Code, Sections 35780 et seq., require permits for the transportation of oversized loads on county roads.
- California Street and Highways Code, Sections 660, 670, 1450, 1460 et seq., 1470, and 1480, regulates right-of-way encroachment and the granting of permits for encroachments on state and county roads.

All construction within the public right-of-way will need to comply with the Manual of Traffic Controls for Construction and Maintenance of Work Zones (Caltrans, 1996).

LOCAL

The 1992 Kern County General Plan Circulation Element includes local goals and guidance policies about building and transportation improvements that are pertinent to the Western MSCC project. The General Plan introduces planning tools essential for achieving the local transportation goals and policies and includes circulation policies and implementation measures for state highways and local rural community streets within the Buttonwillow Community Development Plan and the Derby Acres Rural Community Plan.

Relevant goals and policies of the Kern County General Plan include:

- As a condition of private development approval, developers shall build roads needed to access the existing road network (Private Development Access to Existing Roadway Network - Policy 1).

The Kern Council of Governments has prepared a Congestion Management Plan (CMP) to ensure that a balanced transportation system is developed relative to population and traffic growth, land use decisions, level of service (LOS) performance standards, and air quality improvement. The current CMP (adopted in 1998) is intended to be an integral and complementary part of Kern County's plans and programs.

The Kern County Regional Transportation Plan (RTP) has established regional transportation goals, policies, objectives, and actions for various modes of transportation that guide transportation policy in the region. The Kern County RTP (adopted in 1998), states that the standard for the roadways and intersections is LOS D.

TRANSMISSION LINE SAFETY AND NUISANCE

Discussed below by subject area are design-related LORS applicable to the physical impacts of transmission lines as proposed for the project. The impacts of concern are addressed through specific federal or state regulations or through established industry standards and practices. Presently there are no local laws or regulations specifically aimed at the physical structure or dimensions of electric power lines to limit the impacts noted above.

AVIATION SAFETY

Any hazard to area aircraft relates to the potential for collision with the line in the navigable air space. The applicable federal LORS as discussed below are intended to ensure the distance and visibility necessary to avoid such collisions.

FEDERAL

- Title 14, Part 77 of the Federal Code of Regulations (CFR), Objects Affecting the Navigation Space. Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a Notice of Proposed Construction or Alteration is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that the structure is located to avoid any significant hazards to area aviation.
- FAA Advisory Circular (AC) No. 70/460-2H, Proposed Construction and or Alteration of Objects that may Affect the Navigation Space. This circular informs each proponent of a project that could pose an aviation hazard of the need to file the Notice of Proposed Construction or Alteration (Form 7640) with the FAA.
- FAA AC No. 70/460-1G, Obstruction Marking and Lighting. This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the indirect effects of line operation produced by the physical interactions of line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts could be assessed from field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

FEDERAL

- Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification to ensure compliance with this FCC requirement.

STATE

- General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated in the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

INDUSTRY STANDARDS

There are no design-specific federal regulations to limit the audible noise from transmission lines. As with radio noise, such noise is limited instead through design and maintenance standards established from industry research and experience as effective without significant impacts on line safety, efficiency maintainability and reliability. All high-voltage lines are designed to assure compliance. Such noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic

crackling, frying or hissing sound or hum. Since (as with communications interference), the noise level depends on the strength of the line electric field, the potential for occurrence can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during wet weather and from lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from lines of less than 345 kV such as the proposed line. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way.

NUISANCE SHOCKS

INDUSTRY STANDARDS

There are no design-specific federal regulations to limit nuisance shocks in the transmission line environment. For modern high-voltage lines, such shocks are effectively minimized industry wide through grounding procedures specified in the National Electrical Safety Code and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. Such electric charges are induced in different ways by the line electric and magnetic fields.

As with lines of the type proposed, the applicant will be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff usually recommends specific conditions of certification to ensure that such grounding is made within the right-of-way by both the applicant and property owners.

FIRE HAZARDS

The fire hazards addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines or that could result from direct contact between the line and nearby trees and other combustible objects.

STATE

- General Order 95 (GO-95), CPUC, Rules for Overhead Electric Line Construction specifies tree-trimming criteria to minimize the potential for power line-related fires.
- Title 14 Section 1250 of the California Code of Regulations, Fire Prevention Standards for Electric Utilities specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks that are addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

STATE

- GO-95, CPUC. Rules for Overhead Line Construction . These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and line workers.
- Title 8, CCR, Section 2700 et seq., High Voltage Electric Safety Orders . These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.

INDUSTRIAL STANDARDS

There are no design-specific federal regulations to prevent hazardous shocks from power lines. Safety is assured industry wide through compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

ELECTRIC AND MAGNETIC FIELD (EMF) EXPOSURE

The possibility of deleterious health effects from electric and magnetic field exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of considering related exposures together as EMF exposure. As noted by the applicant (Midway 1999a, pages 5.16-11 and 5.16-12), the available evidence has not established that such fields pose a significant health hazard to exposed humans. However, staff considers it important, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Therefore, staff considers it appropriate, in light of present uncertainty, to reduce such fields to some degree, where feasible, until the issue is better understood. The challenge has been to establish when, and how far to reduce them.

While there is considerable uncertainty about the EMF/health effects issue, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns relate to the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency and maintainability, depending on the type and extent of such measures.

STATE

In California, the CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only with respect to new or modified lines. It required each utility within its jurisdiction to establish EMF-reducing design guidelines for all new or upgraded power lines and related facilities within their respective service areas. The CPUC further established specific limits on the resources to be used in each case for field reduction. Such limitations were intended by the CPUC to apply to the cost of any redesign to reduce field strength or relocation to reduce exposure. Utilities not within the jurisdiction of the CPUC voluntarily comply with these CPUC requirements. This PUC policy resulted from assessments made to implement CPUC Decision 93-11-013 of 1989.

In keeping with this CPUC policy, staff requires evidence that each proposed line will be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local issues bearing on safety, reliability efficiency and maintainability. It is therefore, up to each applicant to ensure that such measures are applied in ways, and to an extent, without significant impacts on line operation. The extent of such applications will be reflected by the ground-level field strengths as measured during operation. When estimated or measured for the line, such field strengths can be used by staff and other regulatory agencies for comparison with fields of lines of similar voltage and current-carrying capacity. Such field strengths can be estimated for any given design, using established procedures. Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since each new line in California is currently required to be designed according to the EMF-reducing guidelines of the utility in the service area involved, their fields are required under existing CPUC policies to be similar to fields from similar lines in that service area. A condition of certification is usually proposed by staff to ensure implementation of the reduction measures necessary. The applicable condition for this project is TLSN-1.

INDUSTRIAL STANDARDS

No federal regulations have been established specifying environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research necessary for an appropriate policy on the EMF issue.

In the face of the present health uncertainty, several states have opted for design-driven regulations ensuring that fields from new lines are generally similar to those from existing lines. Some states (Florida, Minnesota, New Jersey, New York, Montana) have set specific environmental limits on one or both fields in this regard. These limits are, however, not based on any specific health effects. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines.

Before the present health-based concern developed, measures to reduce field effects from power line operations were mostly aimed at the electric field component, whose effects can manifest as the previously noted radio noise, audible noise and nuisance shocks. Therefore, designs were aimed industry wide, at reducing the strengths of the electric fields. The present focus is on the magnetic field because only it can penetrate building materials to potentially produce the types of health impacts at the root of the present concern. As one focuses on the strong magnetic fields from the more visible transmission and other high-voltage power lines, staff considers it important for perspective, to note that an individual in a home could be exposed for short periods to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). Scientists have not established which of these types of exposures would be more biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than the power line environment.

TRANSMISSION SYSTEM ENGINEERING

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), Rules for Overhead Electric Line Construction, formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead electric lines and to the public in general.
- CPUC Rule 21 provides standards for the reliable connection of parallel generating stations connected to participating transmission owners.
- Western Systems Coordinating Council (WSCC) Reliability Criteria provide the performance standards used in assessing the reliability of the interconnected system. These Reliability Criteria require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria includes the Reliability Criteria for Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 Criteria for Transmission System Contingency Performance which requires that the results of power flow and stability simulations verify established performance levels. Performance levels are defined by specifying the allowable variations in voltage, frequency and loading that may occur on systems other than the one in which a disturbance originated. Levels of performance range from no significant adverse effect outside a system area during a minor disturbance (loss of load or facility loading outside emergency limits) to a performance level that only seeks to prevent system cascading and the subsequent blackout of island areas. While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1998).
- North American Electric Reliability Council (NERC) Planning Standards provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions, however the NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).
- Cal-ISO Reliability Criteria also provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these

Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance and the NERC Planning Standards. The Cal-ISO Reliability Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Reliability Criteria also provide some additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Reliability Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid.

- Cal-ISO Scheduling Protocols and Dispatch Protocols require conformance with NERC, WSCC, and Local Area Reliability and Planning Criteria. These standards will be applied to the assessment of the system reliability implications of the Western MSCO project. Also of major importance to projects which may sell through the California Power Exchange (Cal-PX) are the Cal-ISO Day/Hour Ahead Inter-zonal Congestion Management Scheduling Protocol (SP 10), the Transmission System Loss Management Scheduling Protocol (SP 4), and the Creation of the Real Time Merit Order Stack (SP 11). The Congestion Management Scheduling Protocol provides that the operation of power plants not violate system criteria when market participants request generation dispatch or the use of major interties. The Real Time Merit Order Stack is developed based on increasing energy bid prices so that the least cost bids are accepted early on and if congestion is anticipated the highest bids are not selected. The Transmission System Loss Management Scheduling Protocol uses the Cal-ISO power flow model to identify total transmission losses at each generating unit and scheduling point. Additional calculations are performed to determine the actual net power output required by the generating units to meet their scheduled obligations. (Cal-ISO 1998a, Cal-ISO 1998b).
- Cal-ISO Participating Generator Agreement consists of detailed explanations of the requirements in the Cal-ISO Tariff pertaining to the paralleled generating unit.

VISUAL RESOURCES

FEDERAL AND STATE

The proposed project, including the linear facilities, is located on private lands and is thus not subject to federal land management requirements. Likewise, no roadway in the project vicinity is a designated or eligible State Scenic Highway. Therefore, no federal or state regulations pertaining to scenic resources are applicable to the project.

LOCAL

KERN COUNTY GENERAL PLAN

Kern County has no specific policies on visual or aesthetic resources that apply to the Midway Sunset project. However, these issues are addressed in the Kern County General Plan, Open Space Element, and are implemented by the Kern County Planning and Development Services Department (Kern County, 1994). This element of the General Plan requires public notification and review of any projects that may adversely impact visual resources. In accordance with Chapter 19.86 of the Kern County Zoning Code, the applicant is required to prepare a Landscape Plan when final construction drawings of the project are completed.

CHAPTER 2 PROJECT DESCRIPTION

The proposed Western MSCC project will be a nominal 500-megawatt (MW), natural gas-fired combined cycle power plant to be located along the north side of West Crocker Springs Road, approximately 3 miles west of State Route 33 and 6 miles northwest of the community of Fellows, 2.5 miles southwest of the community of Derby Acres, and 6 miles south of the community of McKittrick.

WATER SUPPLY LINE

A 16-inch, 1.8-mile long above ground water supply pipeline will be installed from the plant site to the West Kern County Water District distribution facility (line number 303). The water line will follow an existing right-of-way and will rest on existing pipe supports, or be built on supports immediately adjacent within the existing corridor. From staff's perspective, the pipeline will be seen in the context of the existing oil and gas facilities and would not produce a significant change in visual conditions.

NATURAL GAS PIPELINE

The natural gas piping will extend from the existing MSCC facility to the proposed power plant facility. Because the pipeline will be within the footprints of the existing plant and the proposed plant, it will not be prominently visible from

publicly accessible areas. Visual impacts during construction would not be significant.

TRANSMISSION LINE

The Western MSCC project will interconnect with the Midway Substation, located east of Buttonwillow. The proposed 230 kV transmission route is within the preexisting MSCC transmission corridor. The new 19-mile line parallels an existing line that originates at the adjacent cogeneration plant. From the proposed plant site, the proposed transmission line heads north across the Telephone Hills and terminates at the Midway Substation.

WASTE MANAGEMENT

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT (42 U.S.C. SECTION 6921 ET SEQ.)

The Resource Conservation and Recovery Act (RCRA) establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

- record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- labeling practices and use of appropriate containers,
- use of a manifest system for transportation to permitted treatment, storage, or disposal facilities, and
- submission of periodic reports to the U.S. Environmental Protection Agency (EPA) or authorized state agency.

TITLE 40, CODE OF FEDERAL REGULATIONS, PART 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity. Specific types of wastes are also listed.

STATE

CALIFORNIA HEALTH AND SAFETY CODE, SECTION 25100 ET SEQ. (HAZARDOUS WASTE CONTROL ACT OF 1972, AS AMENDED).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 17200 ET SEQ. (MINIMUM STANDARDS FOR SOLID WASTE HANDLING AND DISPOSAL)

These regulations set forth minimum standards for solid waste handling and disposal guidelines to ensure conformance of solid waste facilities with county

solid waste management plans, as well as enforcement and administration provisions.

TITLE 22, CALIFORNIA CODE OF REGULATIONS, SECTION 66262.10 ET SEQ. (GENERATOR STANDARDS)

These sections establish requirements for generators of hazardous waste. Waste generators must determine if their wastes are hazardous according to specified characteristics or lists of hazardous wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, generators must use registered hazardous waste transporters for any offsite shipments. Requirements are also established for record keeping, reporting, packaging, and labeling of hazardous wastes, use of containers and tanks for hazardous waste storage, and limiting the amount of time that hazardous waste can be stored onsite.

LOCAL

KERN COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

All generators and processors of hazardous waste are encouraged to develop long-term waste management programs. Large generators of hazardous waste should be encouraged to recycle, treat and detoxify their wastes on site. Many such processes could be implemented in existing industrial map designations, if zoned appropriately (Policy No. 17).

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970 (the Act). The Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, /651 (29 U.S.C. //651 through 678). This public law is codified at Title 29 of the Code of Federal Regulations, under General Industry Standards, Parts 1910.1 through 1910.1450 (29 CFR Part 1910.1-1910.1450) and clearly defines the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. Most of the safety and health standards now in force under the Act for general industry represent a compilation of materials authorized by the Act from existing federal standards and national consensus standards. These include standards from the voluntary membership organizations of the American National Standards Institute (ANSI), and the National Fire Protection Association (NFPA) which publishes the National Fire Codes.

The congressional purpose of the Act is to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources, (29 USC/651). The Federal Department of Labor promulgates and enforces safety and health standards that are applicable to all businesses affecting interstate commerce. The Department of Labor established the Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the Act.

Applicable Federal requirements include:

- 29 U.S. Code/651 et seq. (Occupational Safety and Health Act of 1970)
- 29 CFR Part 1910.1-1910.1450 (Occupational Safety and Health Administration Safety and Health Regulations)
- 29 CFR Part 1952.170—1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR Part 1910.1—1910.1500)

STATE

California passed the Occupational Safety and Health Act of 1973 (Cal/OSHA) as published in the California Labor Code/6300. Regulations promulgated as a result of the Act are codified at Title 8 of the California Code of Regulations, beginning with Part 450 (8 CCR Part 450 et seq.) The California Labor Code requires that the State Standards Board must adopt standards at least as effective as the federal standards, which have been, promulgated (Calif. Labor

Code /142.3(a)). Health and Safety laws meet or exceed the Federal requirements. Hence, California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published at 29 CFR Parts 1910.1-1910.1500). The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

The State of California Department of Industrial Relations is charged with responsibility for administering the Cal/OSHA plan. The Department of Industrial Relations is further split into six divisions to oversee, among other activities: industrial accidents, occupational safety and health, labor standards enforcement, statistics and research, and the State Compensation Insurance Fund (workers compensation).

Employers are responsible to insure that their employees are informed about workplace hazards, potential exposure and the work environment (Calif. Labor Code /6408). Cal/OSHA's principal tool in ensuring that workers and the public are informed is the Material Safety Data Sheet (MSDS) (8 CCR /5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1990 (1980 Calif. /874 and Calif. Labor Code // 6360-6399.7). It mirrored the Federal Hazard Communication Standard (29 CFR Part 1910.1200) which established an employee's right to know about chemical hazards in the workplace, but added the provision of applicability to public sector employers.

Finally, California Senate Bill 198 required that employers establish and maintain a written Injury and Illness Prevention Program to identify workplace hazards and communicate them to its employees through a formal employee training program (8 CCR 3203).

Applicable State requirements include:

- 8 CCR /339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act
- 8 CCR /450, et seq. Cal/OSHA regulations
- 24 CCR /3, et seq. - incorporates the current edition of the Uniform Building Code
- La Follette Bill (Health and Safety Code /25500, et seq.) - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility
- Health and Safety Code /255000-25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility

LOCAL

The California Building Standards Code published at Title 24 of the California Code of Regulations, (24 CCR / 3, et seq.) is comprised of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety. The Building Standards Code includes the electrical, mechanical, energy, and fire codes applicable to the project. Local planning /building & safety departments enforce the California Uniform Building Code.

National Fire Protection Association (NFPA) standards are published in the California Fire Code. The fire code contains general provisions for fire safety, including, but not restricted to: 1) required road and building access; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code reflects the body of regulations published at Part 9 of the California Code of Regulations pertaining to the California Fire Code. (24 CCR Part 9) as defined in the California Building Standards Law (California Health and Safety Code/18901)

Similarly the Uniform Fire Code Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United States premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

Applicable local requirements include:

- 1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9)
- Uniform Fire Code Standards
- California Building Code Title 24, California Code of Regulations (24 CCR /3, et seq.)

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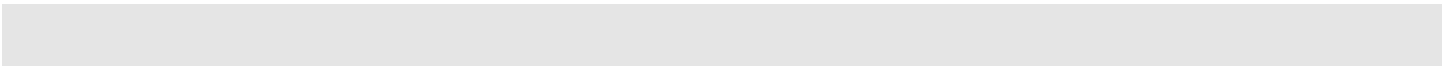
WESTERN MIDWAY-SUNSET

Appendix B



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Proof of Service List



STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

In the Matter of:) Docket No. 99-AFC-9
)
Application for Certification for the) PROOF OF SERVICE
Midway Sunset Cogeneration Company's (MSCC)
Western Midway Sunset Project (Midway Sunset)

I, _____, declare that on I deposited copies of the _____ in the
United States mail at Sacramento, CA with first class postage thereon fully prepaid and
addressed to the following:

DOCKET UNIT

Send the original signed document ~~power, the~~
required 12 copies to the address below: Jane Wilson, President
4700 Stockdale Highway
Suite 120
Bakersfield, CA 93309
CALIFORNIA ENERGY
COMMISSION
DOCKET UNIT, MS-4
Attn: Docket No. 99-AFC-9
1516 Ninth Street
Sacramento, CA 95814-5512

Counsel for Applicant:

Michael Alcantar, Esq.
Alcantar & Elsesser, LLP
One Embarcadero Center

In addition to the documents sent to Suite 2420
Commission Docket Unit, also send San Francisco, CA 94111
individual copies of any documents to:

APPLICANT

Midway Sunset Cogeneration Company San Joaquin Valley Unified Air Pollu
Edmond R. Western, Executive Director Control District (SJVUAPCD)
3466 W. Crocker Springs Road 1990 E. Gettysburg Ave.
P.O. Box 457 Fresno, CA 93726-0244
Fellows, CA 93224-0457

INTERESTED AGENCIES

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Ron Daschmans
CA ISO - Grid Planning

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Folsom, CA 95630

Gary Heath, Executive Director
Electricity Oversight Board
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Reza Ahfami
Regional Water Quality Control Board
(RWQCB), Central Valley
3614 E. Ashlan Avenue
Fresno, CA 93726

Jerry Pearson, General Manager
West Kern Water District
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INTERVENOR

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Larry Allen
Air Quality Planning Manager
3433 Roberto Court
San Luis Obispo, CA 93401

With Copies to:

Ray Biering, Esq., District Counsel
Office of the County Counsel
County Government Center, Room 386
San Luis Obispo, CA 03408

LIMITED PURPOSE INTERVENTION

Mervyn Soares
Texaco Power and Gasification
Bakersfield-Sycamore Cogen Office
P.O. Box 81438
Bakersfield, CA 93380-1438

With Copies to:

Grattan & Galati
Att: John Grattan, Esq.
801 K Street, Penthouse Suite
Sacramento, CA 95814

I declare under penalty of perjury that the foregoing is true and correct

[signature]

* * * *

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Jack Caswell
Project Manager
MS-15

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WESTERN MIDWAY-SUNSET

Appendix C



Exhibit List

STATE OF CALIFORNIA

**Energy Resources Conservation
And Development Commission**

In the Matter of:)	
)	
Application for Certification)	Docket No. 99-AFC-9
for the Western Midway Sunset)	
Cogeneration Company Project)	
<u>(Midway Sunset Power Project)</u>)	

Exhibit List

- Exhibit 1: Application for Certification for the Western Midway Sunset Cogeneration Company Project, Volumes 1, 11, 111, and IV (Confidential), dated December 1999, as supplemented on February 9, 2000, February 18, 2000, February 22, 2000, February 23, 2000, February 24, 2000 (Confidential), February 25, 2000, and, March 3, 2000 (Confidential). Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 2: Applicant's responses to Staff's data requests of April 5, 2000, dated May 5, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 3: Applicant's responses to CEC Staff data requests of April 5, 2000, dated June 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 4: Applicant's confidential responses to CEC Staff data requests of April 5, 2000, dated May 4, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 5: Applicant's confidential responses to CEC Staff data requests of June 7, 2000, dated June 21, 2000. Sponsored by Applicant, received into evidence on December 13, 2000.

- Exhibit 6: Applicant's responses to CEC Staff data requests of April 5, 2000, and June 7, 2000, dated June 21, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 7: Applicant's confidential responses to CEC Staff data requests of June 27, 2000, dated July 6, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 8: Applicant's confidential responses to CEC Staff data requests of April 5, 2000, dated July 24, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 9: Applicant's responses to CEC Staff consultant data requests (original material submitted as Appendix S), dated July 26, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 10: Application for a Report of Waste Discharge, submitted to the California Regional Water Quality Control Board, Central Valley Region, Fresno Branch Office on March 16, 2000 and July 3, 2000; received into the CEC Docket Unit on July 24, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 11: Prevention of Significant Deterioration (PSD) Applicability Analysis and Permit Application, dated February 18, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 12: United States Environmental Protection Agency letter of determination, dated April 17, 2000 indicating that the PSD application is administratively complete. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 13: Revised Preliminary Impact Analysis Modeling for the Prevention of Significant Deterioration PSD Permit, dated May 16, 2000. Sponsored by Applicant; received into evidence on December 13, 2000.

Exhibit 14: Applicant's Declaration Testimony supported by witness qualifications in all topic areas as follows:

Air Quality, dated December 7, 2000;
Alternatives, dated December 7, 2000;
Biological Resources, dated December 5, 2000;
Compliance Monitoring & Closure; December 7, 2000;
Project Description, dated December 7, 2000;
Cultural Resources dated December 7, 2000;
Facility Design, dated December 7, 2000;
Geology, dated December 7, 2000;
Hazmat; dated December 7, 2000;
Land Use, dated December 7, 2000;
Noise, dated December 8, 2000;
Paleontology; dated December 7, 2000;
Power Plant Efficiency, dated December 7, 2000;
Power Plant Reliability dated December 7, 2000;
Public Health; dated December 7, 2000;
Socioeconomics, dated December 7, 2000;
Soil & Water Resources, dated December 7, 2000;
Traffic & Transportation, dated December 7, 2000;
Transmission Line Safety & Nuisance, dated December 7, 2000;
Transmission System Engineering, dated December 7, 2000
Visual Resources, dated December 7, 2000;
Waste Management, dated December 7, 2000; and
Worker Safety & Fire Protection, dated December 7, 2000.

Exhibit 15: Final Staff Analysis (FSA), dated November 2000. Sponsored by Staff; received into evidence on December 13, 2000.

Exhibit 16A: Air Quality modification to Staff's proposed Conditions of Certification, dated December 12, 2000. Identified and sponsored by Staff on December 13, 2000; received into evidence on January 11, 2001.

Exhibit 16B: Staff Errata to FSA, Biological Resources. Sponsored by Staff; received into evidence on December 13, 2000.

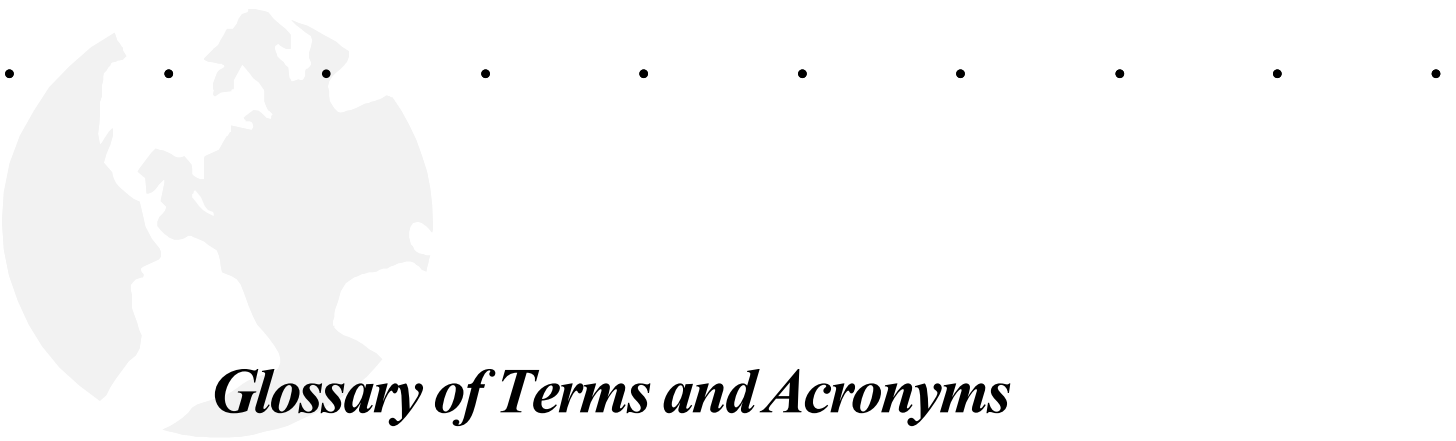
Exhibit 16C: Staff Errata to FSA, Traffic & Transportation dated December 12, 2000. Sponsored by Staff; received into evidence on December 13, 2000.

- Exhibit 17: Final Determination of Compliance by the San Joaquin Unified Air Pollution Control District (SJVUAPCD or District), dated December 19, 2000, and District's replacement pages for the FDOC dated January 5, 2001. Sponsored by Staff; received into evidence on January 11, 2001.
- Exhibit 18: Data Requests Responses #4, dated July 2000 on Soil & Water Resources. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 19: Letter dated December 12, 2000 by Native American Consultant, Robert Gomez, Jr., regarding minimizing potential impacts to cultural resources. Sponsored by Applicant; received into evidence on December 13, 2000.
- Exhibit 20: Letter dated January 4, 2001, from Cal ISO to Applicant regarding the Detailed Facilities Study and Cal ISO's final approval of the Midway Sunset Power Project. Sponsored by Staff; received into evidence on January 11, 2001.

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WESTERN MIDWAY-SUNSET

Appendix D



Glossary of Terms and Acronyms

GLOSSARY OF TERMS AND ACRONYMS

A		BARCT	Best Available Retrofit Control Technology
A	Ampere	bbl	barrel
AAL	all aluminum (electricity conductor)	BCDC	Bay Conservation and Development Commission
AAQS	Ambient Air Quality Standards	BCF	billion cubic feet
ABAG	Association of Bay Area Governments	Bcfd	billion cubic feet per day
AC	alternating current	b/d	barrels per day
ACE	Argus Cogeneration Expansion Project Army Corps of Engineers	BLM	Bureau of Land Management
ACSR	aluminum covered steel reinforced (electricity conductor)	BPA	U.S. Bonneville Power Administration
AFC	Application for Certification	BR	Biennial Report
AFY	acre-feet per year	Btu	British thermal unit
AHM	Acutely Hazardous Materials	C	
ANSI	American National Standards Institute	CAA	U.S. Clean Air Act
APCD	Air Pollution Control District	CAAQS	California Ambient Air Quality Standards
APCO	Air Pollution Control Officer	CALEPA	California Environmental Protection Agency
AQMD	Air Quality Management District	CALTRANS	California Department of Transportation
AQMP	Air Quality Management Plan	CAPCOA	California Air Pollution Control Officers Association
ARB	Air Resources Board	CBC	California Building Code
ARCO	Atlantic Richfield Company	CCAA	California Clean Air Act
ASAE	American Society of Architectural Engineers	CDF	California Department of Forestry
ASHRAE	American Society of Heating Refrigeration & Air Conditioning Engineers	CDFG	California Department of Fish and Game
ASME	American Society of Mechanical Engineers	CEERT	Coalition for Energy Efficiency and Renewable Technologies
ATC	Authority to Construct	CEM	continuous emissions monitoring
B		CEQA	California Environmental Quality Act
BAAQMD	Bay Area Air Quality Management District	CESA	California Endangered Species Act
BACT	Best Available Control Technology	CFB	circulating fluidized bed
BAF	Basic American Foods	CFCs	chloro-fluorocarbons
		cfm	cubic feet per minute

CFR	Code of Federal Regulations
cfs	cubic feet per second
CLUP	Comprehensive Land Use Plan
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂	carbon dioxide
COI	California Oregon Intertie
CPCN	Certificate of Public Convenience & Necessity
CPM	Compliance Project Manager
CPUC	California Public Utilities Commission
CT	combustion turbine current transformer
CTG	combustion turbine generator
CURE	California Unions for Reliable Energy
	D
dB	decibel
dB(A)	decibel on the A scale
DC	direct current
DCTL	Double Circuit Transmission Line
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DFG	California Department of Fish and Game
DHS	California Department of Health Services
DISCO	Distribution Company
DOC	Determination of Compliance
DOE	U.S. Department of Energy
DSM	demand side management
DTC	Desert Tortoise Council
DWR	California Department of Water Resources

	E
EDF	Environmental Defense Fund
Edison	Southern California Edison Company
EDR	Energy Development Report
EFS&EPD	Energy Facilities Siting and Environmental Protection Division
EIA	U.S. Energy Information Agency
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ELFIN	Electric Utility Financial and Production Simulation Model
EMF	electric and magnetic fields
EOR	East of River (Colorado River)
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
ER	Electricity Report
ERC	emission reduction credit {offset}
ESA	Endangered Species Act (Federal) Environmental Site Assessment
ETSR	Energy Technologies Status Report
	F
FAA	Federal Aviation Administration
FBE	Functional Basis Earthquake
FCAA	Federal Clean Air Act
FCC	Federal Communications Commission
FEIR	Final Environmental Impact Report
FIP	Federal Implementation Plan
FONSI	Finding of No-Significant Impact
FERC	Federal Energy Regulatory Commission
FSA	Final Staff Assessment
	G

GEP	good engineering practice	KGRA	known geothermal resource area
GIS	gas insulated switchgear geographic information system	km	kilometer
gpd	gallons per day	KOP	key observation point
gpm	gallons per minute	KRCC	Kern River Cogeneration Company
GW	gigawatt	kV	kilovolt
GWh	gigawatt hour	KVAR	kilovolt-ampere reactive
	H	kW	kilowatt
H ₂ S	hydrogen sulfide	kWe	kilowatt, electric
HCP	habitat conservation plan	kWh	kilowatt hour
HHV	higher heating value	kWp	peak kilowatt
HRA	Health Risk Assessment		L
HRSG	heat recovery steam generator	LADWP	Los Angeles Department of Water and Power
HV	high voltage	LAER	Lowest Achievable Emission Rate
HVAC	heating, ventilating and air conditioning	lbs	pounds
	I	lbs/hr	pounds per hour
IAR	Issues and Alternatives Report	lbs/MMBtu	pounds per million British thermal units
IEA	International Energy Agency	LCAQMD	Lake County Air Quality Management District
IEEE	Institute of Electrical & Electronics Engineers	LMUD	Lassen Municipal Utility District
IID	Imperial Irrigation District	LORS	laws, ordinances, regulations and standards
IIR	Issues Identification Report		M
IOU	Investor-Owned Utility	m (M)	meter, million, mega, milli or thousand
IS	Initial Study	MBUAPCD	Monterey Bay Unified Air Pollution Control District
ISO	Independent System Operator	MCE	maximum credible earthquake
	J	MCF	thousand cubic feet
JES	Joint Environmental Statement	MCL	Maximum Containment Level
	K	MCM	thousand circular mil (electricity conductor)
KCAPCD	Kern County Air Pollution Control District	μg/m ³	micro grams (10 ⁻⁶ grams) per cubic meter
KCM	thousand circular mils (also KCmil) (electricity conductor)		

MEID	Merced Irrigation District	NOP	Notice of Preparation (of EIR)
MG	milli gauss	NOV	Notice of Violation
mgd	million gallons per day	NRDC	Natural Resources Defense Council
MID	Modesto Irrigation District	NSCAPCD	Northern Sonoma County Air Pollution Control District
MOU	Memorandum of Understanding	NSPS	New Source Performance Standards
MPE	maximum probable earthquake	NSR	New Source Review
m/s	meters per second	O	O
MS	Mail Station	O ₃	Ozone
MVAR	megavolt-ampere reactive	OASIS	Open Access Same-Time Information System
MW	megawatt (million watts)	OCB	oil circuit breaker
MWA	Mojave Water Agency	OCSG	Operating Capability Study Group
MWD	Metropolitan Water District	O&M	operation and maintenance
MWh	megawatt hour	OSHA	Occupational Safety and Health Administration (or Act)
MWp	peak megawatt	P	P
N	N	PG&E	Pacific Gas & Electric Company
N-1	one transmission circuit out	PDCI	Pacific DC Intertie
N-2	two transmission circuits out	PHC(S)	Prehearing Conference (Statement)
NAAQS	National Ambient Air Quality Standards	PIFUA	Federal Powerplant & Industrial Fuel Use Act of 1978
NCPA	Northern California Power Agency	PM	Project Manager particulate matter
NEPA	National Energy Policy Act National Environmental Policy Act	PM ₁₀	particulate matter 10 microns and smaller in diameter
NERC	National Electric Reliability Council	PM _{2.5}	particulate matter 2.5 microns and smaller in diameter
NESHAPS	National Emission Standards for Hazardous Air Pollutants	ppb	parts per billion
NMHC	nonmethane hydrocarbons	ppm	parts per million
NO	nitrogen oxide	ppmvd	parts per million by volume, dry
NOI	Notice of Intention	ppt	parts per thousand
NOL	North of Lugo	PRC	California Public Resources Code
NO _x	nitrogen oxides		
NO ₂	nitrogen dioxide		

PSD	Prevention of Significant Deterioration	SCAQMD	South Coast Air Quality Management District
PSRC	Plumas Sierra Rural Electric Cooperative	SCE	Southern California Edison Company
PT	potential transformer	SCFM	standard cubic feet per minute
PTO	Permit to Operate	SCH	State Clearing House
PU	per unit	SCIT	Southern California Import Transmission
PURPA	Federal Public Utilities Regulatory Policy Act of 1978	SCR	Selective Catalytic Reduction
PV	Palo Verde photovoltaic	SCTL	single circuit transmission line
PX	Power Exchange	SDCAPCD	San Diego County Air Pollution Control District
	Q	SDG&E	San Diego Gas & Electric Company
QA/QC	Quality Assurance/Quality Control	SEPCO	Sacramento Ethanol and Power Cogeneration Project
QF	Qualifying Facility	SIC	Standard industrial classification
	R	SIP	State Implementation Plan
RACT	Reasonably Available Control Technology	SJVAB	San Joaquin Valley Air Basin
RDF	refuse derived fuel	SJVAQMD	San Joaquin Valley Air Quality Management District
ROC	Report of Conversation reactive organic compounds	SMAQMD	Sacramento Metropolitan Air Quality Management District
ROG	reactive organic gas	SMUD	Sacramento Municipal Utility District
ROW	right of way	SMUDGE	SMUD Geothermal
RWQCB	Regional Water Quality Control Board	SNCR	Selective Noncatalytic Reduction
	S	SNG	Synthetic Natural Gas
SACOG	Sacramento Area Council of Governments	SO ₂	sulfur dioxide
SANBAG	San Bernardino Association of Governments	SO _x	sulfur oxides
SANDAG	San Diego Association of Governments	SO ₄	sulfates
SANDER	San Diego Energy Recovery Project	SoCAL	Southern California Gas Company
SB	Senate Bill	SONGS	San Onofre Nuclear Generating Station
SCAB	South Coast Air Basin	SPP	Sierra Pacific Power
SEGS	Solar Electric Generating Station	STIG	steam injected gas turbine
SCAG	Southern California Association of Governments		

SWP	State Water Project	UDC	Utility Displacement Credits
SWRCB	State Water Resources Control Board	UDF	Utility Displacement Factor
	T	UEG	Utility Electric Generator
TAC	Toxic Air Contaminant	USC(A)	United States Code (Annotated)
TBtu	trillion Btu	USCOE	U.S. Corps of Engineers
TCF	trillion cubic feet	USEPA	U.S. Environmental Protection Agency
TCM	transportation control measure	USFS	U.S. Forest Service
TDS	total dissolved solids	USFWS	U.S. Fish and Wildlife Service
TE	transmission engineering	USGS	U.S. Geological Survey
TEOR	Thermally Enhanced Oil Recovery		V
TID	Turlock Irrigation District	VCAPCD	Ventura County Air Pollution Control District
TL	transmission line or lines	VOC	volatile organic compounds
T-Line	transmission line		W
TOG	total organic gases	W	Watt
TPD	tons per day	WAA	Warren-Alquist Act
TPY	tons per year	WEPEX	Western Energy Power Exchange
TS&N	Transmission Safety and Nuisance	WICF	Western Interconnection Forum
TSE	Transmission System Engineering	WIEB	Western Interstate Energy Board
TSIN	Transmission Services Information Network	WOR	West of River (Colorado River)
TSP	total suspended particulate matter	WRTA	Western Region Transmission Association
	U	WSCC	Western System Coordination Council
UBC	Uniform Building Code	WSPP	Western System Power Pool